

ANT/007/01  
Folder #16

**RECEIVED**  
OCT 07 1986

Moab District  
Price River Resource Area  
P. O. Drawer AB  
Price, Utah 84501

DIVISION OF  
OIL, GAS & MINING

3400  
SL-025431  
(U-066)

**FILE COPY**

Bob Eccli  
Chief Engineer  
United States Fuel Co.  
P. O. Box A  
Hiawatha, UT 84527

Dear Mr. Eccli:

Your proposal for minor modification of the approved mine plan received by this office, September 25, 1986, has been reviewed by this office and the BLM Utah State Office, Branch of Solid Minerals. The plan to turn entries west off of the South Mains appears to be about the only logical choice in order to gain access to the remaining Hiawatha Seam reserves, estimated by your office to exceed 10 million tons. The new West Mains would approximately parallel the old West Mains, which were abandoned due to excessive abutment pressures from the pillared King No. 5 mine located about 30 feet above the King No. 6 mine. The new West Mains are located far enough south so that the abutment pressures from King No. 5 mine should be absent, however, there are present other old works in the 'A' seam above the proposed new West Mains which could cause ground control problems. Because of the possible ground control problems we feel that it is imperative that the new West Mains be columnized as close as possible with the old 'A' seam works 25 to 40 feet above. The advancement of the West Mains must be evaluated continuously, and the mine plan may need to be changed again in order to meet conditions unknown at this time. We feel that this will also be necessary with the advancement of the South Mains, as these will be extended through old works and barrier pillars.

This modification of the mine plan is therefore approved as stipulated.

Sincerely yours,

*J. JAMES W. ORYDEN*

Area Manager

Acting

cc: MDO (U-065)  
USO (U-927)  
✓ DOGM, SLC  
OSM, Denver

30 Lawson:svs:10/6/86  
Kang 03730

File ACT/007/011-89D  
pending

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

March 17, 1989

**RECEIVED**  
MAR 22 1989

Ms. Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

DIVISION OF  
OIL, GAS & MINING

Dear Susan:

In response to concerns expressed during a recent partial inspection U.S. Fuel would like to designate locations for temporary storage of waste rock material at the mine sites. Waste rock would be stored here until transferred to the refuse disposal site.

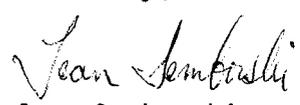
The temporary holding sites are being requested because of the distance between the portals and refuse disposal site and because no equipment exists on site to load and haul this material. In order to maximize the efficiency of the transfer operation we request that temporary storage be allowed.

The proposed storage locations are located within the disturbed areas of the mine site, are protected by sediment ponds and pose no threat to environmental concerns. The waste rock material is not toxic or hazardous. It will be of the same material presently disposed of at the refuse pile site.

Enclosed is a revised Page 36 for Chapter III of the Mining and Reclamation Plan, Table of Contents and two maps.

We hope this revision will adequately address the issue.

Sincerely,



Jean Semborski  
Environmental Coordinator

JS:lj

Enclosures:



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Revised 03/10/89

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03/10/89

waste has been associated with the development of portal entries or vent-shafts and in each case the waste has been used in the construction of pads at the portals etc. or used within the mine to fill low areas. Due to the limited remaining coal resources, U.S. Fuel is not proposing any new underground development which would produce underground development waste. Based on the fact that topographic, physiographic, geomorphic, geologic, pedogenic and hydrologic conditions vary greatly from one location to another within the bounds of the permit area and would also vary with the type of underground development which may be desired; providing general, non-site specific and non-project specific underground waste development plans at this point would not be in the best interest of DOGM or U.S. Fuel.

Occasional rock may be brought out through material handling and trash collection activities. Because of practical considerations, i.e. small quantities generated, distance from portals to the refuse pile and required equipment, temporary refuse storage is necessary. Temporary storage locations are utilized at each mine site. Refer to Plates III-8 and III-9.

The temporary storage locations are within the disturbed areas at the mine sites. Drainage from the site is contained by sediment ponds. The refuse is not toxic, hazardous or acid producing.

U.S Fuel Company has not produced toxic acid forming materials. (Refer to discussion under reclamation plans for Hiawatha area). The refuse and slurry materials have been tested for different parameters and found to have a negligible content of toxic elements.

Based on the characteristics, handling and disposal of various waste products, the impact on the environment is minimal. The slurry refuse does not go into the hydrologic system. The refuse material is deposited in two foot minimum lifts and compacted to eliminate ignition.

Several non-coal waste disposal sites (for materials other than slurry or refuse) have been established. The plan and approval for these sites are located in Appendix III-11.

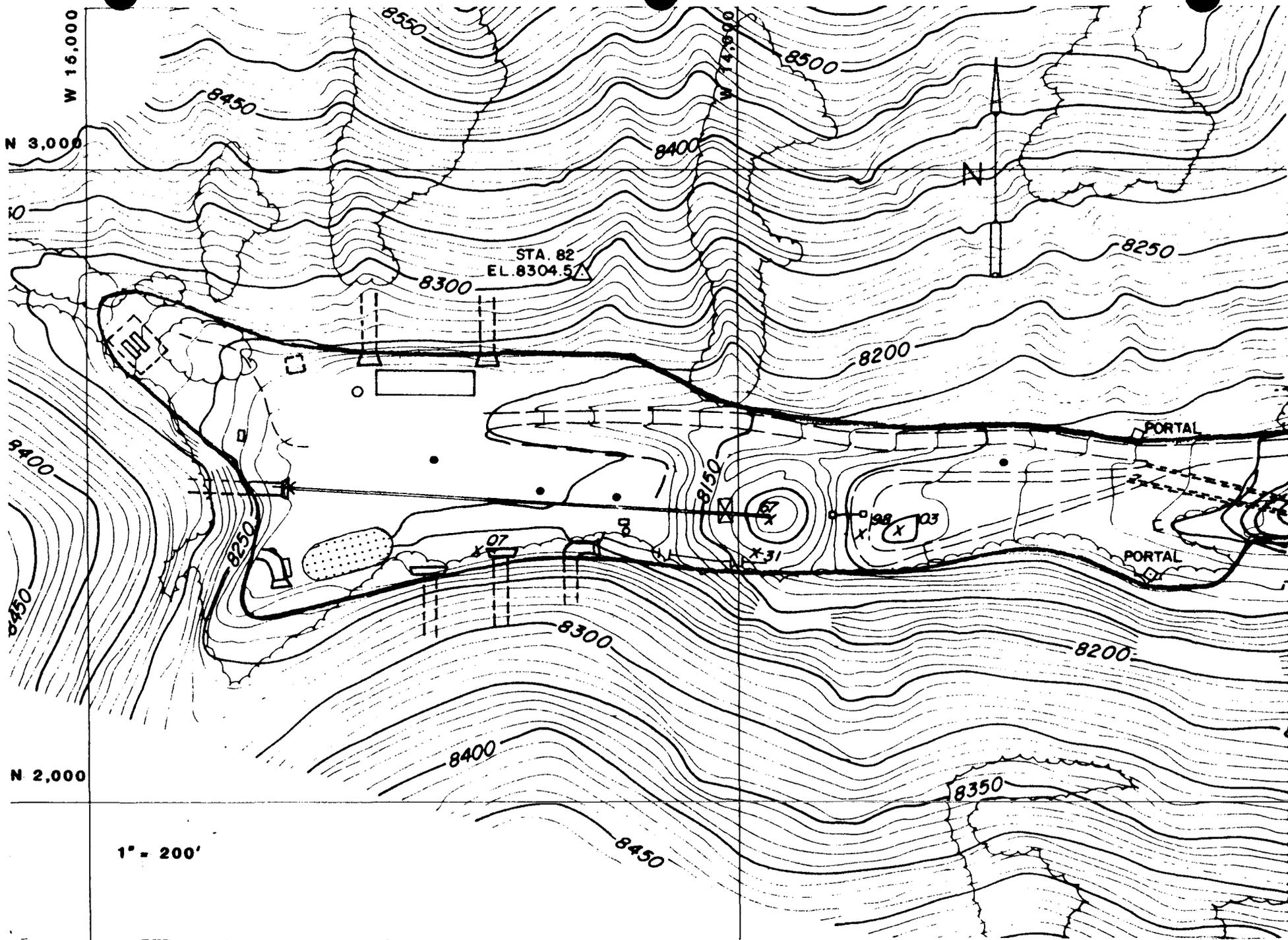


PLATE III-8 MIDDLE FORK TEMPORARY UNDERGROUND DEVELOPMENT WASTE STORAGE SITES

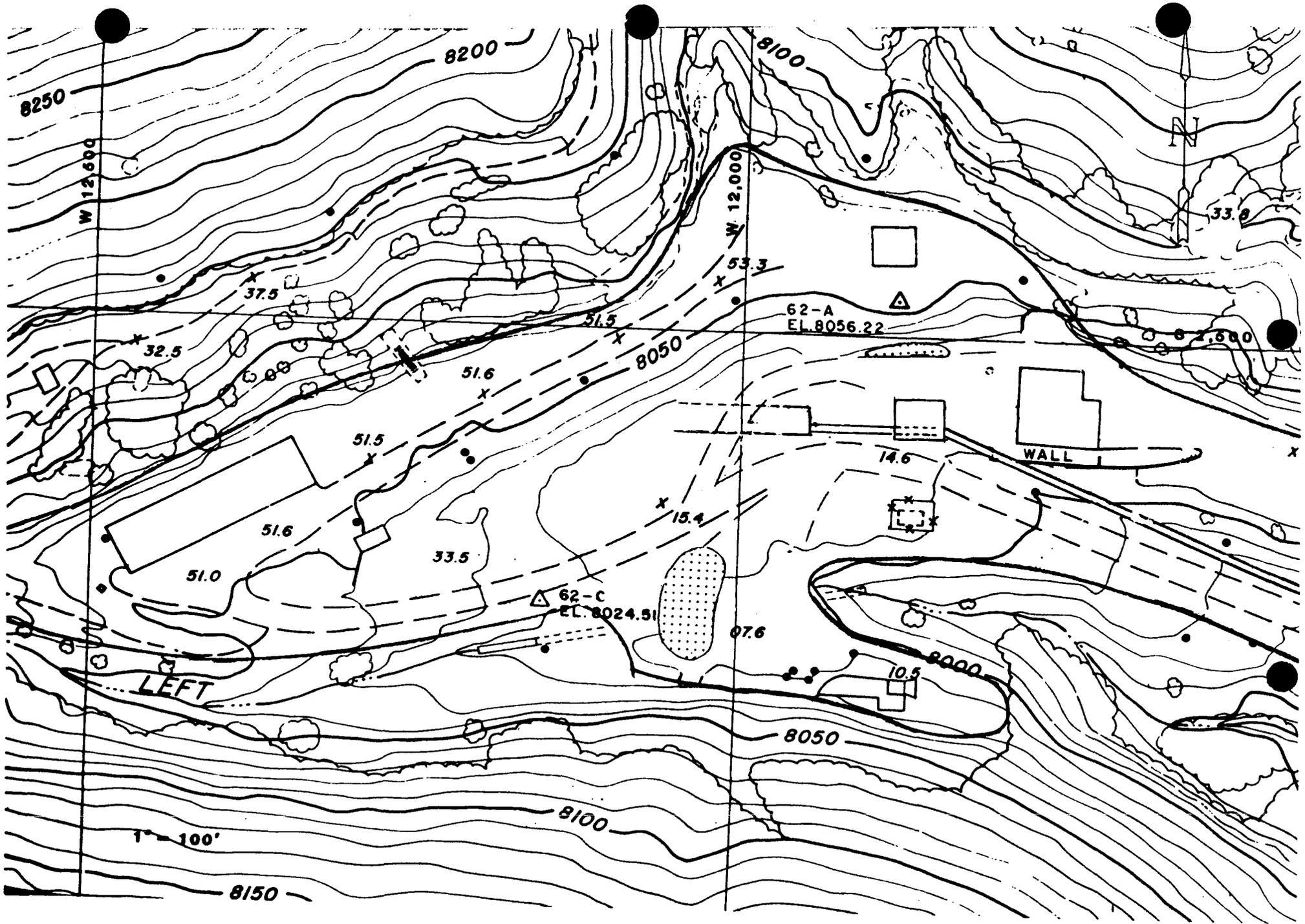


PLATE III 9 SOUTH FORK TEMPORARY UNDERGROUND DEVELOPMENT WASTE STORAGE SITES

File Act/007/011-896

# UNITED STATES FUEL COMPANY

*pending file*

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

March 8, 1989

Ms. Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

**RECEIVED**  
MAR 10 1989

DIVISION OF  
OIL, GAS & MINING

Dear Susan:

U.S. Fuel Company plans to upgrade their Middle Fork loadout facility early this spring. Enclosed are ten copies of the revised permit text, a revised table of contents, a plan of the upgrade and a topographic map depicting the location of the work.

The upgrade to the present loadout will consist of adding a short conveyor (30 feet long) to feed a screen and hammer mill which will crush the run of mine coal. From the hammer mill, the coal will be transferred via two 36" conveyors to a 100 ton silo. The haul trucks will load directly beneath the silo.

This facility will be added to the existing loadout in a presently disturbed area. Drainage from this site already flows to an existing sediment pond. No significant earth work will be required for the upgrade. The current grading and reclamation plan will remain the same.

Benefits to be derived from this installation include more convenient and faster truck loading.

Work on the upgrade will begin as soon as possible. Your rapid response would be greatly appreciated.

Sincerely,



Jean Semborski  
Environmental Coordinator

JS:lj



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The access corridor from the town of Hiawatha to the Middle Fork mine yard is owned by U.S. Fuel Company. This corridor contains the coal haulage road and powerline. Coal handling facilities in the Middle Fork yard consist of a 750 foot overland conveyor structure extending from the King No. 4 and 5 haulage portals to a stacking tower, a 13,000 ton storage pile and vibrating feeder type truck loading facility. From the loading facility at Middle Fork mine, coal is transported by 25 ton bottom dump trucks over a 3 mile haulroad to the processing plant. The haulroad is 24 feet wide and paved with 4 inches of plant mix bituminous material. The haulroad has 3 foot shoulders on each side, giving the road a total width of 30 feet. Drainage structures for the road adequately pass runoff from the upper watersheds into Miller Creek. The location of culverts are shown on Exhibits III-1A and 1B.

The approximate disturbed area for the Middle Fork mine facilities and storage areas is 10 acres. A plan for a portal breakout for intake air and a possible conveyor portal to the coal pile has been approved. Information on the .5 acre of proposed additional disturbance can be found in Appendix III-7 and Exhibit III-1C. However, due to modifications made underground in the mine, the portal will not be used for a belt line. No additional belt lines will be constructed to the coal pile as formerly proposed. Instead, a new belt extension will be installed in the truck loadout yard.

The loadout extension is depicted on Plates 6 and 7. It is designed to crush run of mine coal and transfer it via 36" conveyor to a 100 ton storage silo. Trucks load directly below the silo. The loadout extension is located within the existing truck loadout disturbed area. As no new disturbance was created the existing sediment structures are adequate to control runoff. The present Reclamation Plan for this site covers the belt extension area as well. No changes will be made. Applicable plans and regulations pertaining to this site have already been addressed in appropriate sections of the approved Mine Plan.

North Fork Ventilation Portal. A plan for the construction of this facility is included in the Appendix III-1 of this chapter. A portal was constructed in the North Fork drainage to provide the King No. 4 mine with intake ventilation. Originally, the plan called for return ventilation warranting the construction of a fan and powerline. However, the area was not developed with power so the portal provides intake air naturally for the mine. Exhibit III-2 shows the disturbed area, approximately one acre, of the portal facility. A three mile jeep road from Hiawatha to the ventilation portal is the only access.

South (Left) For Mine Yard. The South Fork mine yard was constructed in 1947 to facilitate the old King 3 mine. For almost 28 years, from 1948 to 1975, there were mining sections operating in the King 3 mine (old works of the proposed King 6 mine). The mine yard occupies approximately 8 acres of fee land. Work has been completed to upgrade the existing structure and construct new facilities for the King 6 mine. Table III-3 gives a summary of the existing facilities for South Fork mine yard.

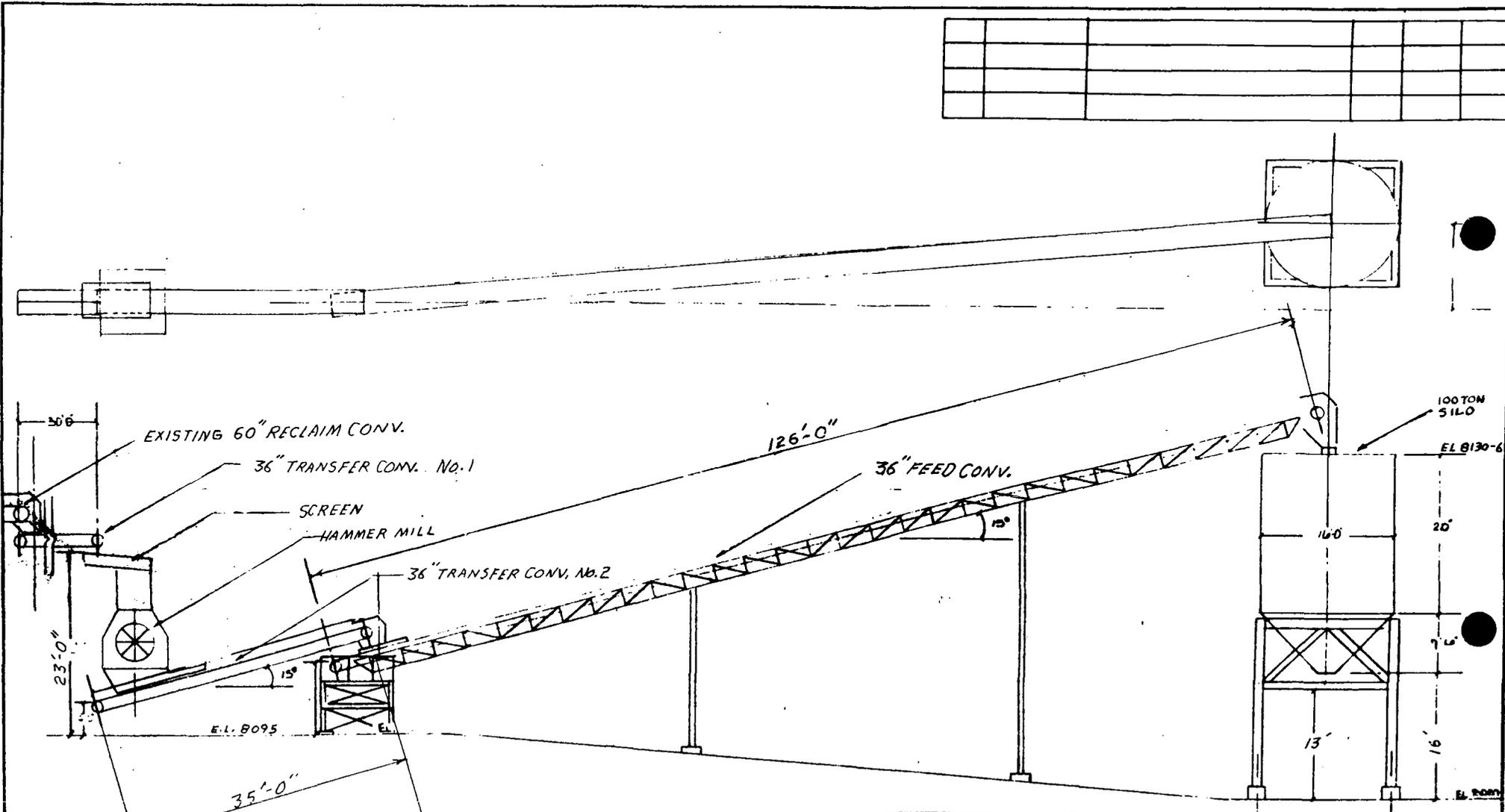



PLATE III-6

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-0		PM	DESCRIPTION	MATERIAL	MAT'L NO.
<b>PARTS LIST</b>					
PART STATUS	SCALE	BY	DATE	 <b>Savage Manufacturing Corp.</b> 310 WEST 7 <sup>th</sup> SOUTH—P.O. BOX 448 PLEASANT GROVE, UTAH 84082	
DRAWN	MW	2/27/88			
DESIGN					
CHKD					
APPROVAL					
PROJECT DESCRIPTION			PROJECT NO.	DRAWING NUMBER	DRWG STAT
DRAWING TITLE			U.S. Fuels Co. HIAWATHA LOADOUT EXPANSION		
SHEET		REV			
of					

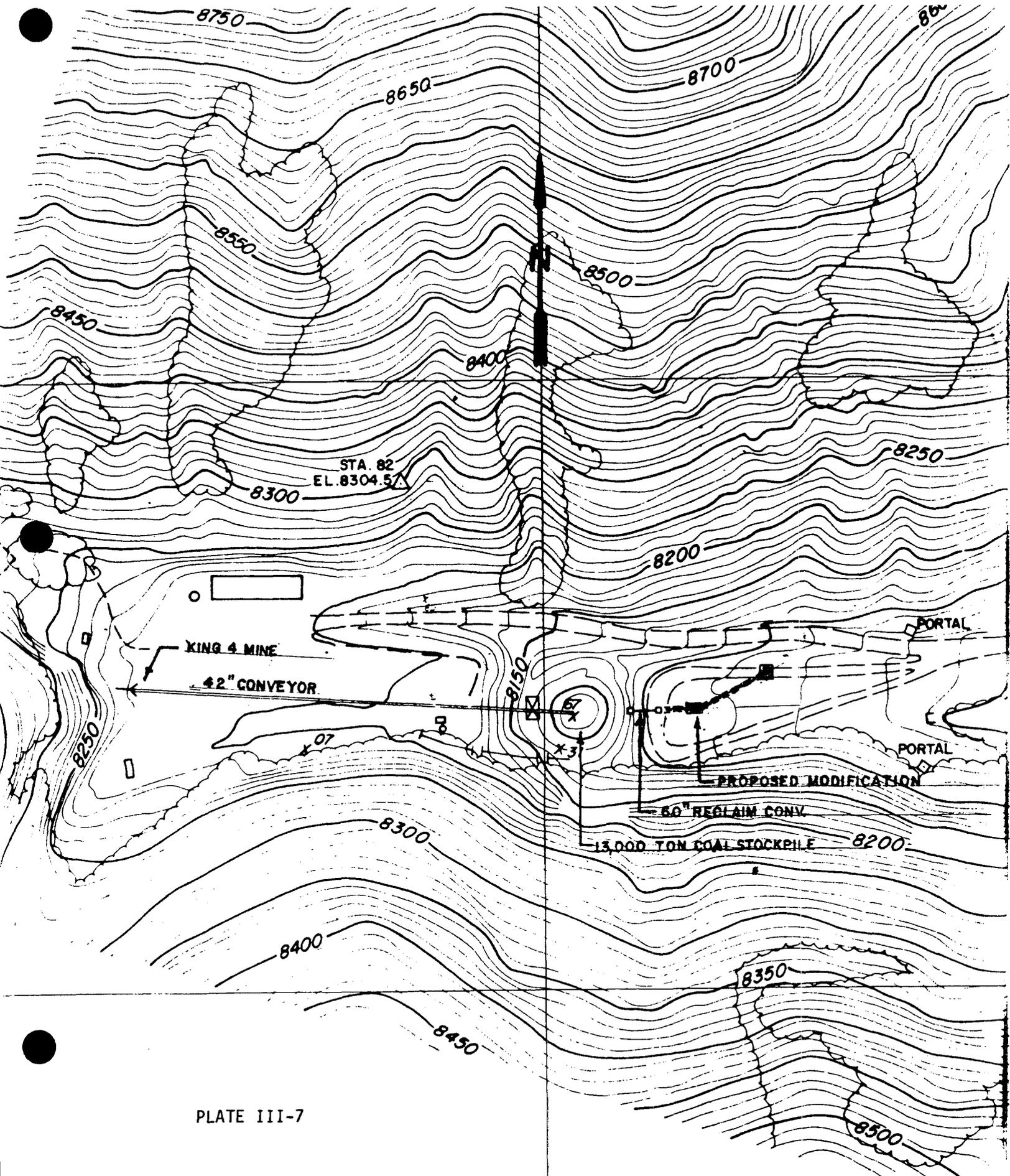


PLATE III-7

Coal is loaded underground on a 42 inch wire rope conveyor; similar to that shown on Plate III-1. The coal is then conveyed from the mine mouth, approximately 2,100 feet down the South Fork canyon, to a 5,000 ton coal stockpile. Trucks are loaded by belt and transport the coal 3 miles to the processing plant at Hiawatha. The surface facilities for South Fork are located on Exhibits III-4A and III-4B.

Water is supplied to South Fork facilities from a pipe extending through the intake air portal and pumped to a 40,000 gallon tank located up the canyon from the changehouse. Remaining water is piped down the canyon to a 130,000 gallon concrete in-ground tank. This water is used at Hiawatha for municipal and industrial uses. Water conveyance devices for water storage facilities in the King 6 area are shown on Exhibit III-12A. A summary of U.S. Fuel's water rights is included in Chapter VII, Hydrology. A sewage line runs from the changehouse to a septic tank located in the mineyard; further down the canyon, it runs to a drain field shown on Exhibit III-4A.

Impact on the existing hydrologic balance will be controlled by retaining runoff in sedimentation ponds. Runoff from the mine yard will be channeled to the existing sedimentation pond at the eastern end of the mine yard. Surface runoff from undisturbed areas is diverted away from disturbed areas. The volume of water retained is the surface runoff only since no water will be discharged from the King No. 6 mine. A sedimentation pond has been built to contain runoff from the truck loading facility.

The disturbed area for the South Fork facility, yard, including the sedimentation pond, is approximately 10 acres. The access corridor, which includes the haulroad and conveyor system, totals approximately 19 acres of disturbed area. The truck loading facility and the associated sedimentation pond amount to a 3 disturbed acres.

The overland conveyor belt at King 6 mine has been raised to meet clearance requirements. A clearance letter can be found in Appendix III-10.

Hiawatha Processing Plant and Waste Disposal Sites. The processing plant at Hiawatha is located immediately north of the town and is on U.S. Fuel Company fee land. Although U.S. Fuel Company owns the complete town of Hiawatha in fee, including buildings, the permit area only includes mine related boundaries. Table III-4 gives a list of major capital equipment associated with the processing plant facilities. The plant was built in 1938. It has a capacity to wash, size and thermal dry 400 tons

file ACT/007/11-89C  
pending

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

**RECEIVED**  
APR 07 1989

April 4, 1989

DIVISION OF  
OIL, GAS & MINING

Ms. Susan Linner  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Sue:

Enclosed please find a copy of the submittal to the Utah Department of Health concerning the modification of the Middle Fork coal loadout facility. Information concerning the facility capacity and estimated daily output can be found in the attached submittal along with a description of proposed dust controls.

We hope this will resolve the questions you had on this modification.

Sincerely,



Jean Semborski  
Environmental Coordinator

JS:lj

Enclosure:



PERMIT TRACKING FORM

Type of Proposal:

MRP AMENDMENT   
 MRP REVISION \_\_\_\_\_  
 EXPLORATION \_\_\_\_\_

TDN # \_\_\_\_\_  
 NOV #N \_\_\_\_\_ # \_\_\_\_\_ OF \_\_\_\_\_  
 CO #C \_\_\_\_\_ # \_\_\_\_\_ OF \_\_\_\_\_

I. B. C. \_\_\_\_\_ (Incidental Boundary Change)

Title of Proposal: Middle Fork Lumber Facilities

Company Name: U.S. Fuel Company

Project or Mine Name: Bonanza Lumber

File #: (INA / PRO / ACT / CEP) 107 / 011 - 88 B # New Acres: 0

LEAD Reviewers: LAK

Tech Memo Drafted

HYDROLOGY \_\_\_\_\_  
 BIOLOGY \_\_\_\_\_  
 ENGINEER JLH  
 SOILS \_\_\_\_\_  
 GEOLOGY \_\_\_\_\_

YES	NO
( )	( )
( )	( )
( )	(X)
( )	( )
( )	( )

**OK**  
 Palomares  
 Air Q.  
 APPROVAL

\*Please Check Appropriate Box!!

Dates:

- |   |                              |
|---|------------------------------|
| (1) Initial Plan Received <u>3/10/89</u>        | (4) Optr. Resubmission _____ |
| Tech Review Due <u>4/10/89</u>                  | Tech Review Due _____        |
| Tech Review Complete _____                      | Tech Review Compl. _____     |
| DOGM Response Sent <u>3/31/89</u>               | DOGM Response Sent _____     |
| Optr. Response Due <u>4/21/89</u>               | Optr. Response Due _____     |
| (2) Optr. Response Rcvd. <u>4/7/89 - 1 copy</u> | (5) Optr. Resp. Rcvd. _____  |
| Tech Review Due <u>4/21/89</u>                  | Tech Review Due _____        |
| Tech Review Complete _____                      | Tech Review Compl. _____     |
| DOGM Response Sent _____                        | DOGM Response Sent _____     |
| Optr. Response Due _____                        | Optr. Response Due _____     |
| (3) Optr. Response Rcvd. _____                  | Condn'l Approval _____       |
| Tech Review Due _____                           | Stipulations Due _____       |
| Tech Review Complete _____                      | Stips. Received _____        |
| DOGM Response Sent _____                        | DOGM Response Sent _____     |
| Optr. Response Due _____                        | Final Approval _____         |
|   | Filed in MRP _____           |
|   | Author _____                 |

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

File ACT/057/1011-89C  
pending

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

**RECEIVED**  
APR 07 1989

April 4, 1989

DIVISION OF  
OIL, GAS & MINING

Ms. Susan Linner  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Sue:

Enclosed please find a copy of the submittal to the Utah Department of Health concerning the modification of the Middle Fork coal loadout facility. Information concerning the facility capacity and estimated daily output can be found in the attached submittal along with a description of proposed dust controls.

We hope this will resolve the questions you had on this modification.

Sincerely,

*Jean Semborski*

Jean Semborski  
Environmental Coordinator

JS:lj

Enclosure:



# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

March 1, 1989

F. Burnell Cordner, Executive Secretary  
State of Utah Department of Health  
Division of Environmental Health  
288 North 1460 West P.O. Box 16690  
Salt Lake City, Utah 84116

Re: Notice of Intent, Modification of  
Coal Loadout Facility

Dear Mr. Cordner:

In accordance with Utah Air Conservation regulations Section 3.1, United States Fuel Company is filing a Notice of Intent to modify a coal loadout facility. The facility is located near U.S. Fuel's King No. 4 mine, approximately 3.5 miles west of Hiawatha, Utah.

The existing facility consists of a 42 inch stacking conveyor which extends from within the King 4 mine, a 13,000 ton raw coal stockpile and a 60 inch reclaim conveyor. Coal drawn from the stockpile is loaded into highway type, tractor trailer haul trucks and transported approximately 3.5 miles to a coal processing plant at Hiawatha. This facility is proposed to be modified by adding a screen and hammer mill crusher system and a 100 ton truck loading silo near the discharge end of the existing 60 inch reclaim conveyor. See attached drawings.

This proposal will allow U.S. Fuel to haul sized mine run coal direct to a unit train loadout site near Helper, Utah without having to unload, stack and reload it several times at the processing plant. It will also greatly reduce the amount of spillage which now occurs due to loading trailers on a small radius curve from a conveyor drop chute.

The modification will begin at the discharge chute of the 60 inch reclaim conveyor. At this point a flop gate will be installed to direct coal to a 36 inch by 30 foot transfer conveyor to a vibrating screen. The screen oversize will go to a hammer mill crusher. The undersize will bypass the crusher and both products will be conveyed to a 100 ton loadout silo. The silo feed system will consist of one 36 inch by 35 foot conveyor and one 36 inch by 126 foot conveyor. The conveyors will have dust covers and transfer chutes will be enclosed. Trucks will load out beneath the silo by means of a hydraulically operated clamshell type feed gate. The gate will be activated electronically by the truck drivers. The system will be capable of handling 500 tons per hour, though the average throughput will be approximately 200 tons per hour for two shifts per work day. A screen analysis and proximate analysis showing moisture content of mine run coal is attached.



F. Burnell Cordner, Executive Secretary  
March 1, 1989  
Page 2

If additional information is required, please call me at 637-2252 or Fred Busch of Savage Coal Services in Salt Lake at 268-9500. Please let me know if there is any reason why we cannot start work on this project within a week or two.

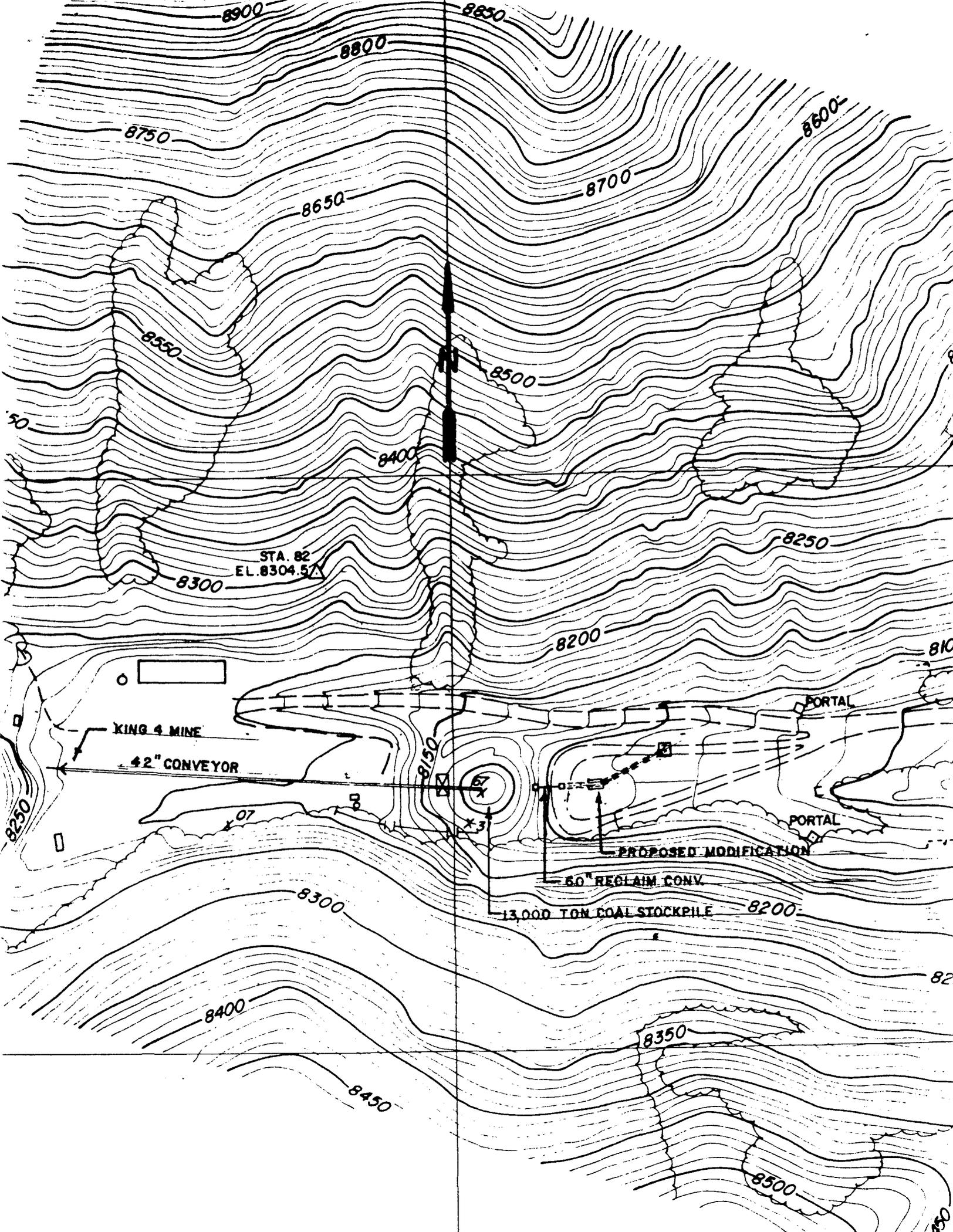
Sincerely,

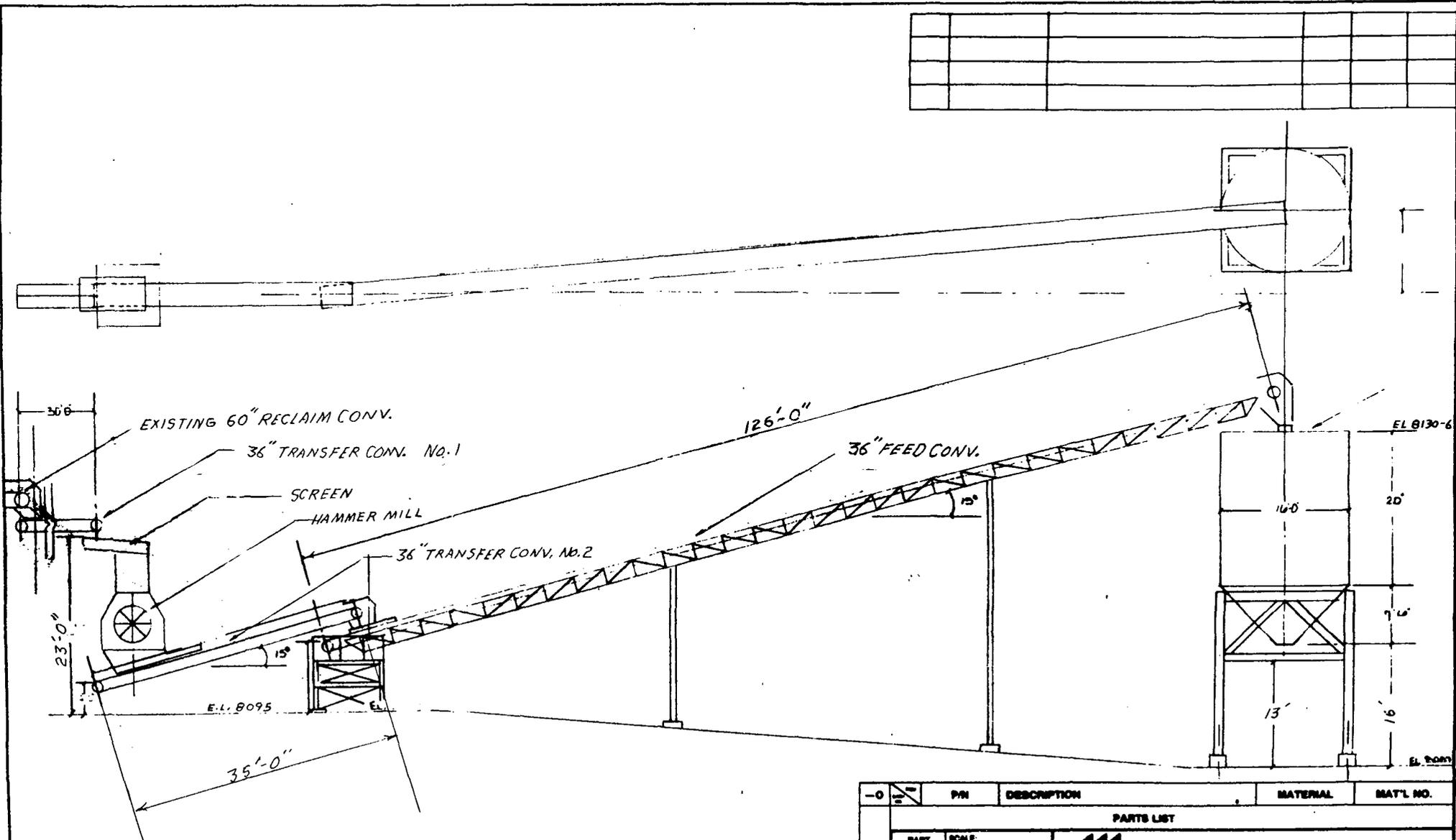
A handwritten signature in cursive script that reads "Robert Eccli".

Robert Eccli  
Sr. Engineer

RE:1j

Attachments:





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-0		P/N	DESCRIPTION	MATERIAL	MAT'L NO.
<b>PARTS LIST</b>					
PART STATUS	SCALE:	BY	DATE	 <b>Savage Manufacturing Corp.</b> 310 WEST 7 <sup>th</sup> SOUTH—P.O. BOX 448 PLEASANT GROVE, UTAH 84062	
DRAWN	MW	EJTB			
DESIGN					
CHKD					
APPROVAL					
PROJECT DESCRIPTION			PROJECT NO.	DRAWING NUMBER	DWG STAT
<b>U.S. Fuels Co.</b> <b>Hiawatha Loadout Expansion!</b>			SHEET	REV	
			of		



General Offices: 583 East Main St., Price, Utah 84501  
Laboratory: Depot Building, Hiawatha, Utah 84527, 801-637-2252

Submitted to :

January 17, 1989

United States Fuel Company  
P. O. Box A  
Hiawatha, Utah 84527

Date Sampled : Month of December 1988

Sample Identification :

Date Received : 12/31/88

Monthly Composite  
December 1988  
Raw Coal

Sampled by : USF

Identification by : USF

Analysis Report # : 1910

---

CERTIFICATE OF ANALYSIS

---

Short Proximate

	As Received Basis	Dry Basis
% Moisture	7.56	-----
% Ash	11.89	12.86
% Sulfur	0.62	0.67
Btu/Lb.	11539	12483
Moisture Ash Free Btu/Lb.		14325

Respectfully submitted,  
HORIZON LABORATORIES, INC.

  
Laboratory Manager

UNITED STATES FUEL COMPANY  
 SCREEN ANALYSIS  
 KING 4 8/30/88  
 SAMPLE 1

FRACTION	% OF SAMPLE	CUMULATIVE %	% ASH	% MOISTURE
+2°	18.32			
2° X 1 5/8°	3.01	21.33		
1 5/8° X 1 1/4°	8.23	29.56		
1 1/4° X 1°	1.99	31.55		
1° X 3/4°	6.79	38.34		
3/4° X 1/2°	10.28	48.62		
1/2° X 1/4°	17.51	66.13		
1/4° X 28 MESH	25.18	91.31		
28 MESH X 40 MESH	1.56	92.87		
40 MESH X 50 MESH	1.56	94.43		
50 MESH X 100 MESH	2.45	96.88		
100 MESH X 0	3.12	100.00		

COMMENTS: < 50 MESH = 5.57%

File ACT 1007/011-88F  
87C  
pending file

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

April 21, 1989

**RECEIVED**  
APR 27 1989

DIVISION OF  
OIL, GAS & MINING

Ms. Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Sue:

Please find enclosed fourteen copies of revised permit pages which address:

- 1) The Middle Fork loadout facility.
- 2) Revision of Appendix III-17, small area exemptions, to reflect a recalculation of runoff and a sediment containment structure,
- 3) Addition of Appendix III-20, diversions to address calculations made on various diversion structures.

All revisions belong in Chapter III. They consist of 1) a revised Chapter III Appendix List, 2) a revised page 5, 3) a revised Appendix III-17, 4) a new Appendix III-19 and 5) a new Appendix III-20.

With regard to the sediment controls east of the lower railyard, please refer to the attached letter of April 19, 1989.

Sincerely,



Jean Semborski  
Environmental Coordinator

JS:lj

Enclosures:



# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

April 19, 1989

RECEIVED  
APR 27 1989

DIVISION OF  
OIL, GAS & MINING

Ms. Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Re: Part 3 of 3 of TDN 88-2-116-2  
Small Area Exemption East of  
Lower Railroad Yard

Dear Ms. Linner:

Regarding your letter of March 14, 1989 and attached technical memo dated March 8, 1989, please find enclosed, revised pages to Appendix III-17 of our Permit Application. These pages show revised values for peak and total runoff volumes using a curve number of 74 as recommended in the technical memo. The revised values show that the required capacity of the catch basin is 5,929 cu. ft. The capacity of the basin given in our earlier response was 2,400 cu. ft. This value was taken from the original dimensions of the basin when it was first built in 1980. Its configuration has been modified since that time. The enclosed contour map shows its present configuration which should be adequate to handle a 10 year, 24 hour storm.

Sincerely,



Jean Semborski  
Environmental Coordinator

JS:lj

Enclosure:



## CHAPTER III - LIST OF APPENDICES

- III-1 North Fork Ventilation Portal Approved Construction Plans
- III-2 King 4 "MSHA" Approved Roof and Ventilation Plans
- III-3 King 5 "MSHA" Approved Roof and Ventilation Plans
- III-4 King 6 "MSHA" Approved Roof and Ventilation Plans
- III-5 Earthwork Quantity Calculations - North Fork, Middle Fork,  
South Fork and Hiawatha Sites
- III-6 Hiawatha #2 Reservoir Structural Analysis and Hazard Assessment
- III-7 King IV Portal Breakout
- III-8 Road Maintenance Program
- III-9 Unit Train Loadout
- III-10 South Fork Conveyor Deer Crossing
- III-11 Non-Coal Waste Disposal Sites
- III-12 Cultural Survey - Middle Fork
- III-13 King VI Interim Revegetation Plan
- III-14 Calculations For Stream Crossing to Access Borrow Areas B & C

- III-15 Refuse Pile Expansion Plan
- III-16 Mohrland Pipeline Upgrade
- III-17 Small Area Exemptions
- III-18 Temporary Crushing, Screening & Loading Facility
- III-19 Middle Fork Loadout Facility
- III-20 Diversions

The access corridor from the town of Hiawatha to the Middle Fork mine yard is owned by U.S Fuel Company. This corridor contains the coal haulage road and powerline. Coal handling facilities in the Middle Fork yard consist of a 750 foot overland conveyor structure extending from the King No. 4 and 5 haulage portals to a stacking tower, a 13,000 ton storage pile and vibrating feeder type truck loading facility. From the loading facility at Middle Fork mine, coal is transported by 25 ton bottom dump trucks over a 3 mile haulroad to the processing plant. The haulroad is 24 feet wide and paved with 4 inches of plant mix bituminous material. The haulroad has 3 foot shoulders on each side, giving the road a total width of 30 feet. Drainage structures for the road adequately pass runoff from the upper watersheds into Miller Creek. The location of culverts are shown on Exhibits III-1A and 1B.

The approximate disturbed area for the Middle Fork mine facilities and storage areas is 10 acres. A plan for a portal breakout for intake air and a possible conveyor portal to the coal pile has been approved. Information on the .5 acre of proposed additional disturbance can be found in Appendix III-7 and Exhibit III-1C. However, due to modifications made underground in the mine, the portal will not be used for a belt line. No additional belt lines will be constructed to the coal pile as formerly proposed. Instead, a new belt extension will be installed in the truck loadout yard.

The loadout extension is depicted on Plates 6 and 7. It is designed to crush run of mine coal and transfer it via 36" conveyor to a 100 ton storage silo. Trucks load directly below the silo. The loadout extension is located within the existing truck loadout disturbed area. As no new disturbance was created the existing sediment structures are adequate to control runoff. The present Reclamation Plan for this site covers the belt extension area as well. No changes will be made. Applicable plans and regulations pertaining to this site have already been addressed in appropriate sections of the approved Mine Plan. Refer to Appendix III-19 for air quality information.

North Fork Ventilation Portal. A plan for the construction of this facility is included in the Appendix III-1 of this chapter. A portal was constructed in the North Fork drainage to provide the King No. 4 mine with intake ventilation. Originally, the plan called for return ventilation warranting the construction of a fan and powerline. However, the area was not developed with power so the portal provides intake air naturally for the mine. Exhibit III-2 shows the disturbed area, approximately one acre, of the portal facility. A three mile jeep road from Hiawatha to the ventilation portal is the only access.

South (Left) For Mine Yard. The South Fork mine yard was constructed in 1947 to facilitate the old King 3 mine. For almost 28 years, from 1948 to 1975, there were mining sections operating in the King 3 mine (old works of the proposed King 6 mine). The mine yard occupies approximately 8 acres of fee land. Work has been completed to upgrade the existing structure and construct new facilities for the king 6 mine. Table III-3 gives a summary of the existing facilities for South Fork mine yard.

APPENDIX III-17

U. S. Fuel Company

Small Area Exemptions

Revised April 20, 1989

United States Fuel Company  
Small Area Exemptions

The following list identifies locations in the permit area that because of their size and location employ alternative methods of sediment control. Figures 1 thru 8, included with this appendix, delineate each area on a contour map and identify site locations by U.S. Fuel coordinates. The area comprising each site is summarized on page 3 of this appendix. The total current disturbed acreage in the permit area is 278.7 acres (Feb. 1989).

HIAWATHA AREA

Topsoil Pile Below Slurry Pond #5

Topsoil stockpiled below slurry pond #5 is located on a pile as indicated on Exhibit III-3 and VIII-4A. The stockpile has been revegetated. It is contained by a berm-ditch sediment control around its' perimeter to control runoff from this site.

Topsoil Pile Below Slurry Pond #4

In 1988 topsoil was stripped from an area below slurry pond #4 and stockpiled adjacent to the site. The pile was seeded, mulched and berm-ditch sediment control was constructed around the perimeter to control disturbed area runoff. See Exhibit III-3 for site location.

Equipment Storage Yard Topsoil Pile

Topsoil was stockpiled at this location in 1978. The pile has been revegetated. Runoff from the topsoil pile would run into the Equipment Storage Yard and would be contained by the sediment control basin which treats drainage from the Equipment Storage Yard area. See Exhibit VII-23 for the site location and depiction of the sediment control structure. This sediment control structure was designed to contain runoff from the topsoil pile along with the runoff from the yard. The sediment control structure is discussed in Chapter III, Page 33 under Equipment Storage Yard Sediment Control and Reclamation.

Area East of Lower Rail Yard and North of Refuse Area

The area directly east of the lower rail yard and north of the refuse area on the map drains to sediment control structures east of the lower rail yard. Runoff from the area east of the lower rail yard and the area north of the refuse storage area contributes runoff to the sediment control

structures. As can be seen from Exhibit III-3 neither the lower rail yard nor the railroad right of way is included as part of U.S. Fuel's disturbed area however, U.S. Fuel has constructed two catchment basins east of the rail yard to contain runoff from this site. The northern catch basin is designed to contain runoff from the area depicted in Exhibit III-3 as well. The southern catchment basin has no diversion ditches but collects drainage directly from a semi-circular zone above it. A cross-section of this basin is shown on Exhibit III-3 also.

Due to the physical constraints of the site it would not be feasible to require a sediment pond to treat drainage from this area. These smaller structures have proven to be capable of handling large flows and spring runoff. They appear to be compatible with the needs of this area and satisfy the intent of the law. See attached calculation sheets.

## MIDDLE FORK CANYON

### Middle Fork Substation and Water Tank Area

The substation and water tank area is shown on Exhibit F-534 as area "C". It is located at the north end of the Middle Fork disturbed area. The minor amount of runoff from this site is adequately treated by the vegetation surrounding it. A watertight block wall has been constructed around the substation to contain any runoff or spillage within it. As this remote area contains only the substation and water tank, very little activity occurs here.

### Middle Fork Timber Yard

Below the Middle Fork mine yard and adjacent to the road is an area used to store timbers for use in the mine. Because of the nature of the material stored here and small area of disturbance, drainage is treated in an alternative manner. Gravel berms help retain water within the disturbed area and channel it toward approved outflow locations. The outflow route passes through a Gabian filter basket filled with gravel to filter any runoff leaving the disturbed area. Refer to Exhibit III-1A and F-534 for site location.

## SOUTH FORK CANYON

### South Fork Topsoil Pile

The topsoil site in South Fork was established during construction of the South Fork Loadout in 1981. The pile has been revegetated and is protected by a berm-ditch sediment control around the perimeter. Exhibit III-4B and VIII-4 depict the location of this stockpile.

## South Fork Water Tank Area

Exhibit III-4A indicates the South Fork water tank and travel corridor with a dashed outline. As the water tank and trail to it have been in place for many years vegetation has become established on and along the trail and around the water tank. The vegetative cover is effective in minimizing erosion and filtering runoff. The trail is utilized to access the water tank only if absolutely necessary. Utilization of the vegetation cover appears to be the best choice of sediment control at this location for several reasons. First, vegetation appears to have worked well in the past, it requires minimal maintenance and it is the most natural and creates the least amount of additional disturbance (no constructed basins or ditches).

## NORTH FORK CANYON

### North Fork Junction Topsoil Pile

At the junction of the Middle Fork and North Fork roads there is a small topsoil pile. This is the only one at this site although others have been proposed. The topsoil pile is protected by a berm-ditch sediment control and has been revegetated. This site is depicted on Exhibit VIII-4.

### North Fork Ventilation Portal Pad

Runoff from the pad area is treated by passing through a filter fabric fence before leaving the disturbed area. Refer to Exhibit III-2 for site location. The area has been revegetated. This location is remote and has negligible activity associated with it.

### Acreage Comprising Small Area Exemptions

<u>Site</u>	<u>Acres</u>
Topsoil Pile Below Slurry Pond No. 5	0.28
Topsoil Pile Below Slurry Pond No. 4	0.25
Topsoil Pile at Equipment Storage Yard	0.69
Area East of Lower Rail Yard	4.7
Middle Fork Substation & Water Tank	0.83
Middle Fork Timber Yard	1.28
South Fork Topsoil pile	0.30
South Fork Water Tank	0.42
Topsoil Pile at North Fork Junction	0.06
North Fork Vent Pad	0.63
Total	9.44

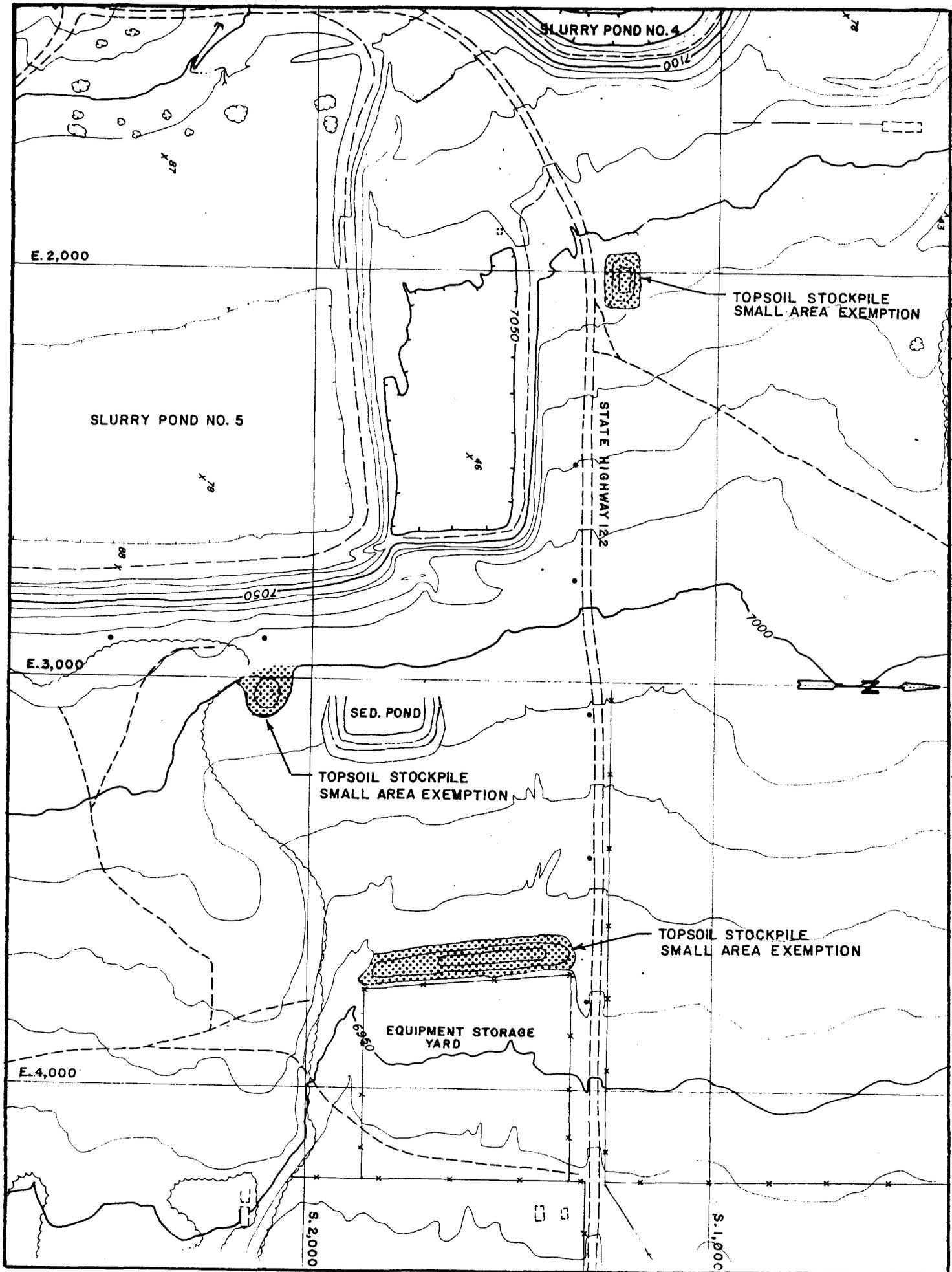


FIG.1 SMALL AREA EXEMPTIONS EAST OF HIAWATHA

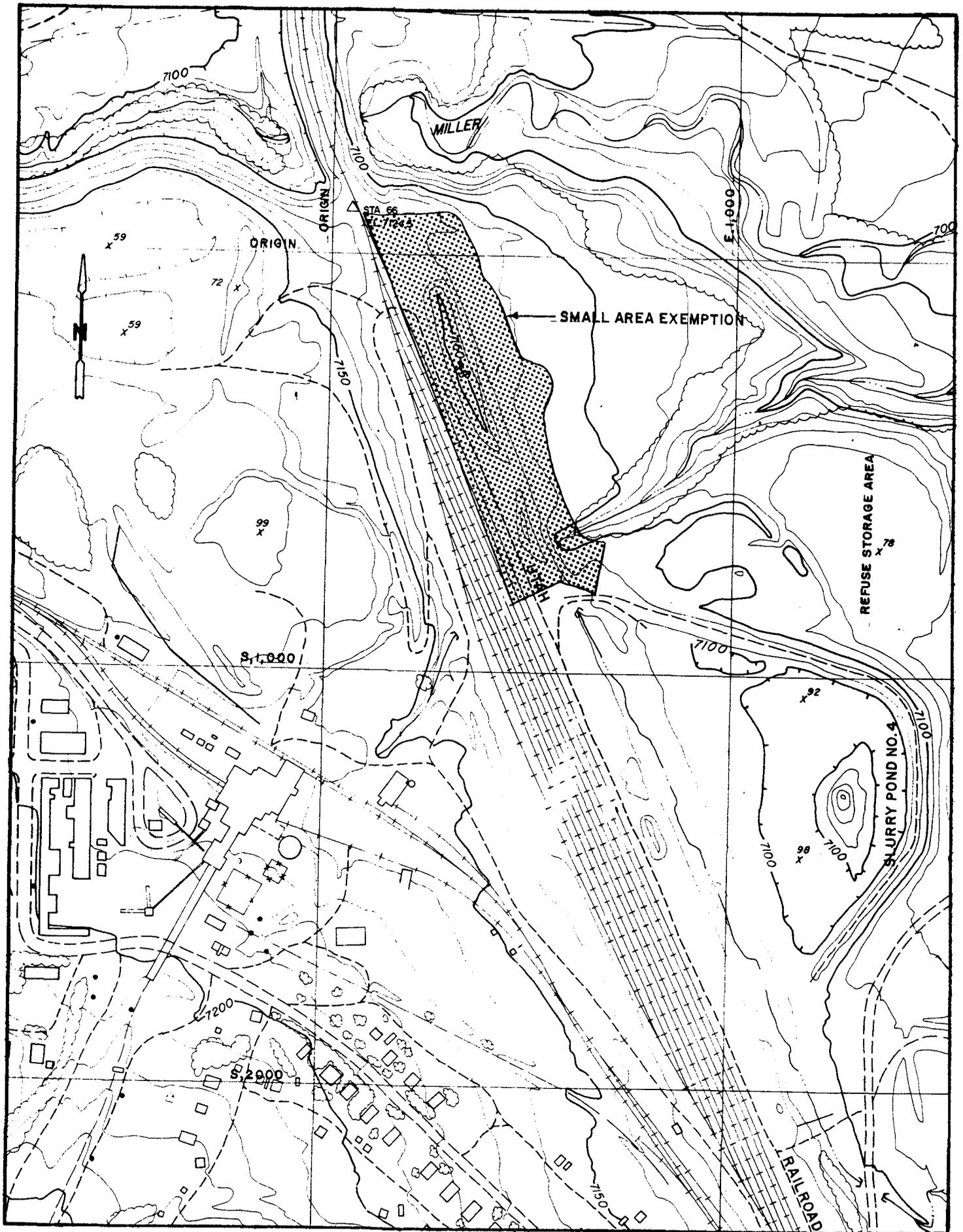


FIG. 2 SMALL AREA EXEMPTION EAST OF LOWER RAIL YARD



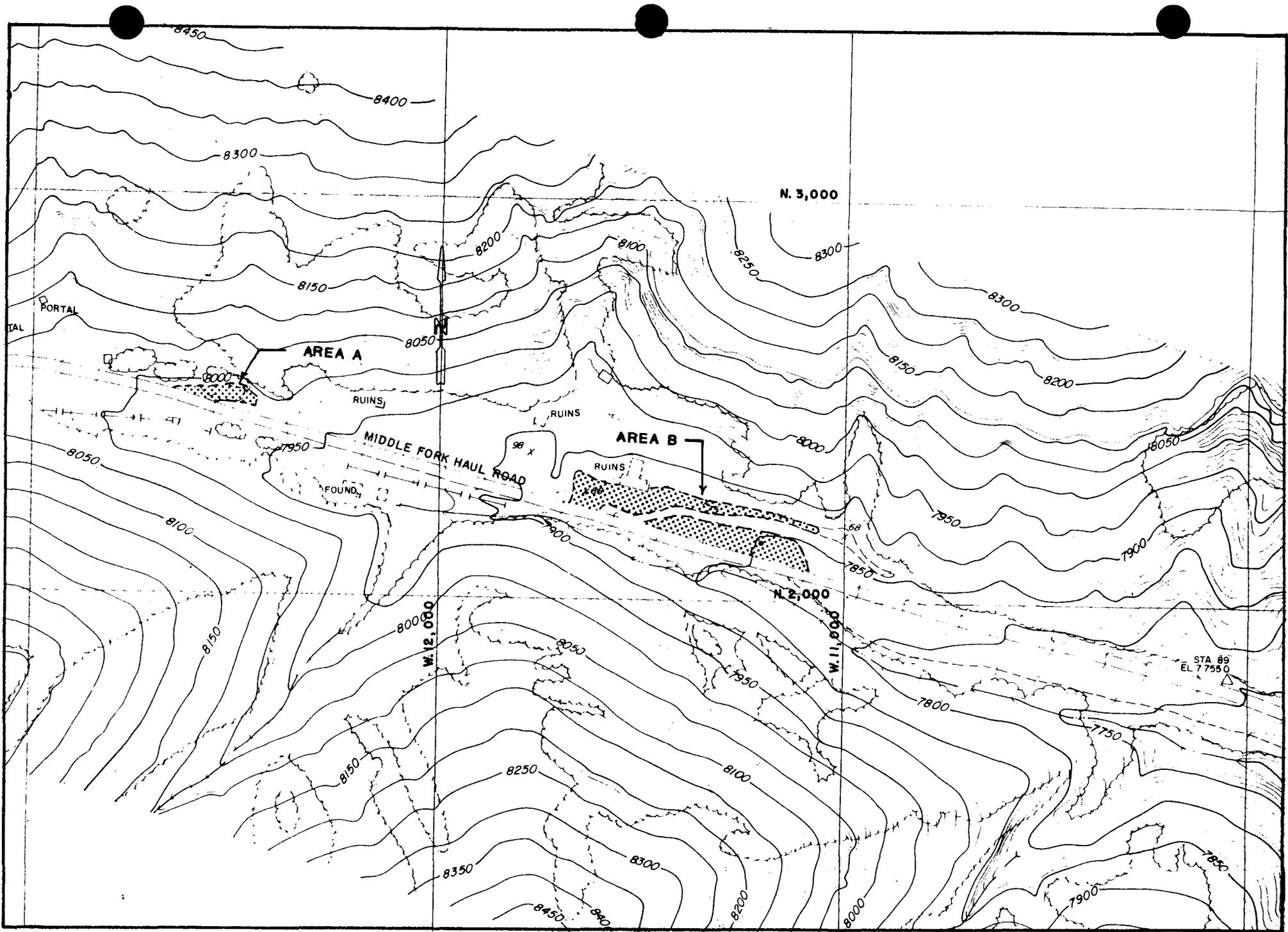


FIG. 4 SMALL AREA EXEMPTION MIDDLE FORK TIMBER YARDS

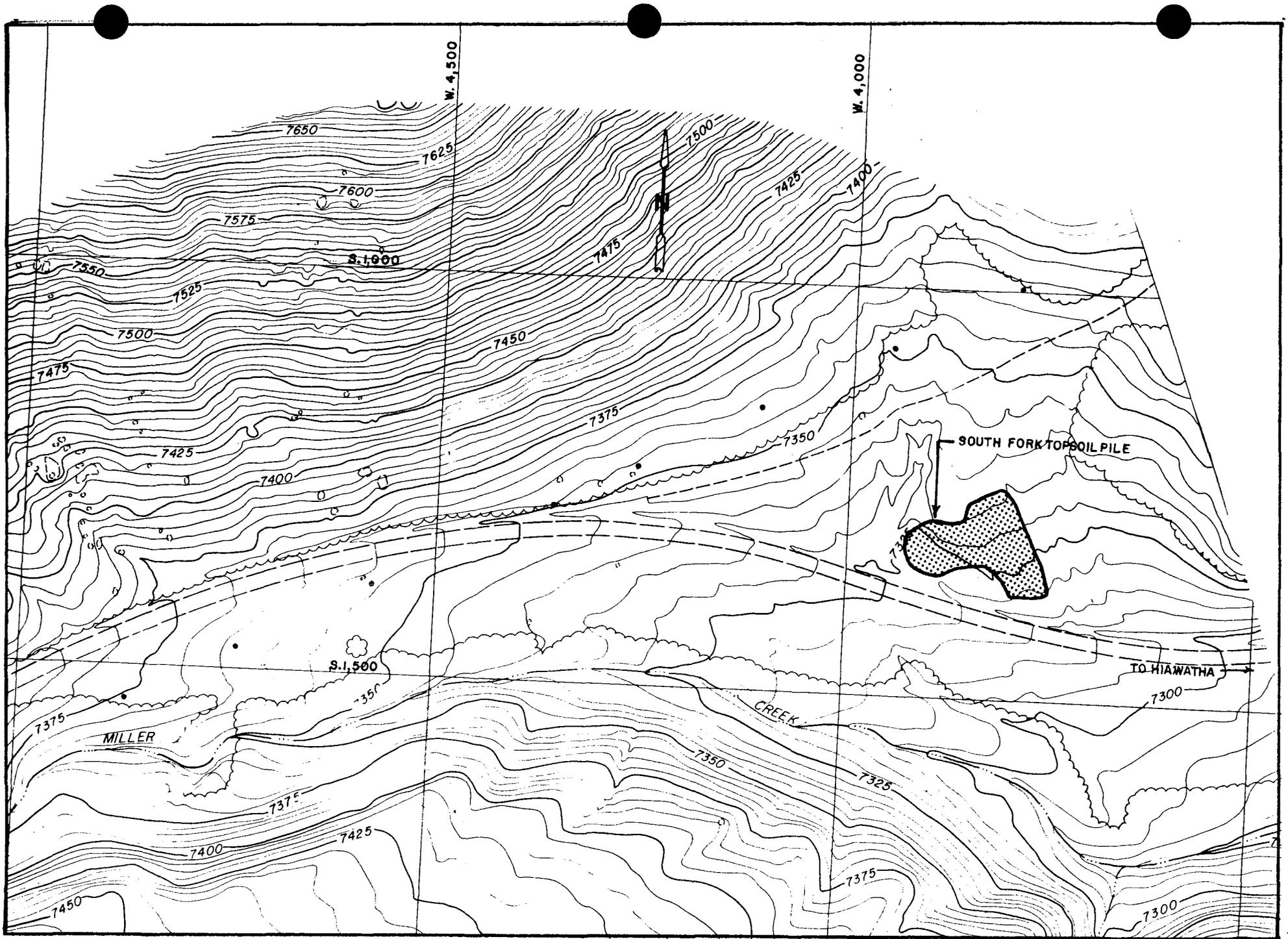


FIG. 5 SMALL AREA EXEMPTION SOUTH FORK TOPSOIL PILE

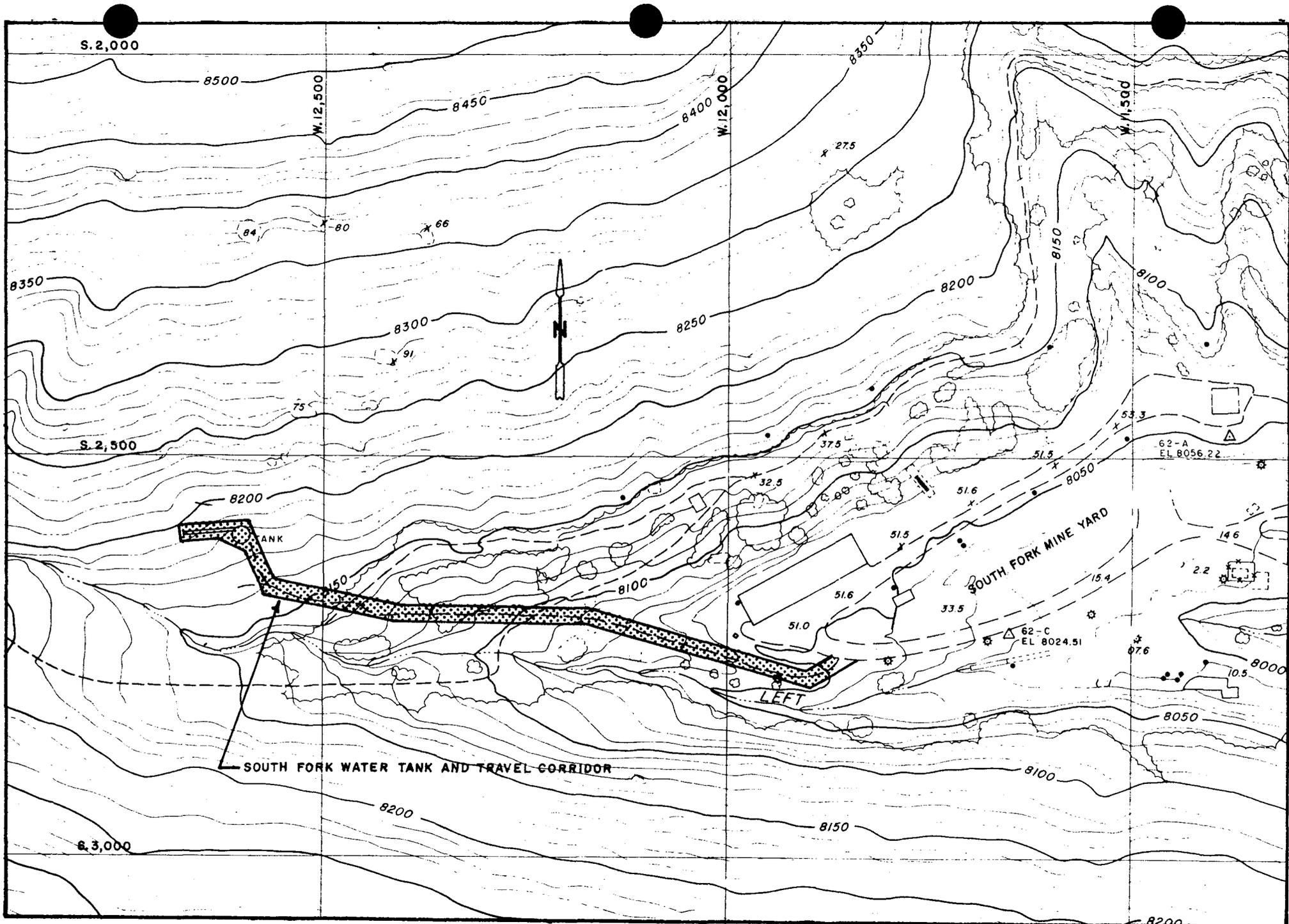


FIG. 6 SMALL AREA EXEMPTION SOUTH FORK WATER TANK AND ACCESS CORRIDOR

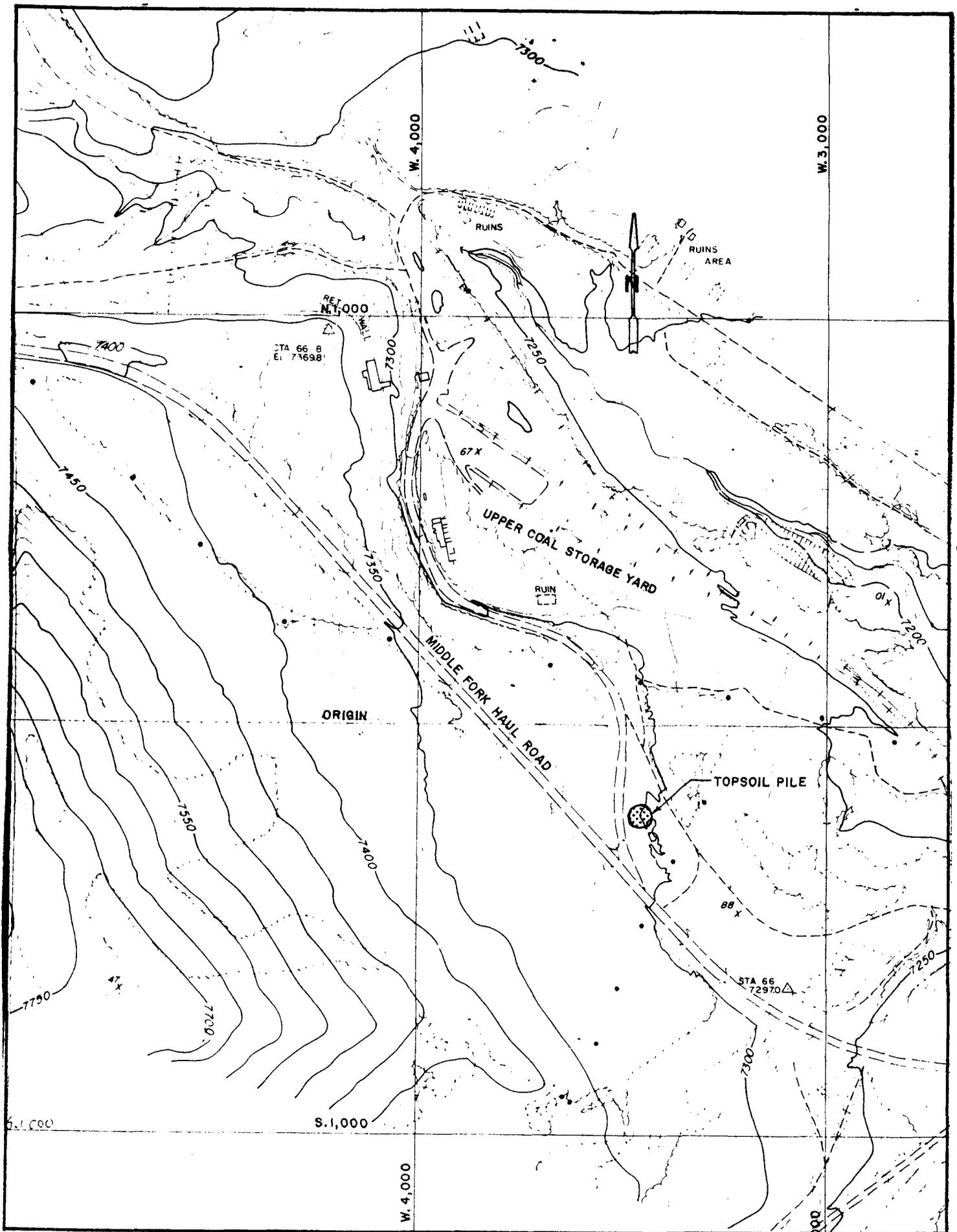


FIG.7 SMALL AREA EXEMPTION NORTH FORK JUNCTION TOPSOIL PILE

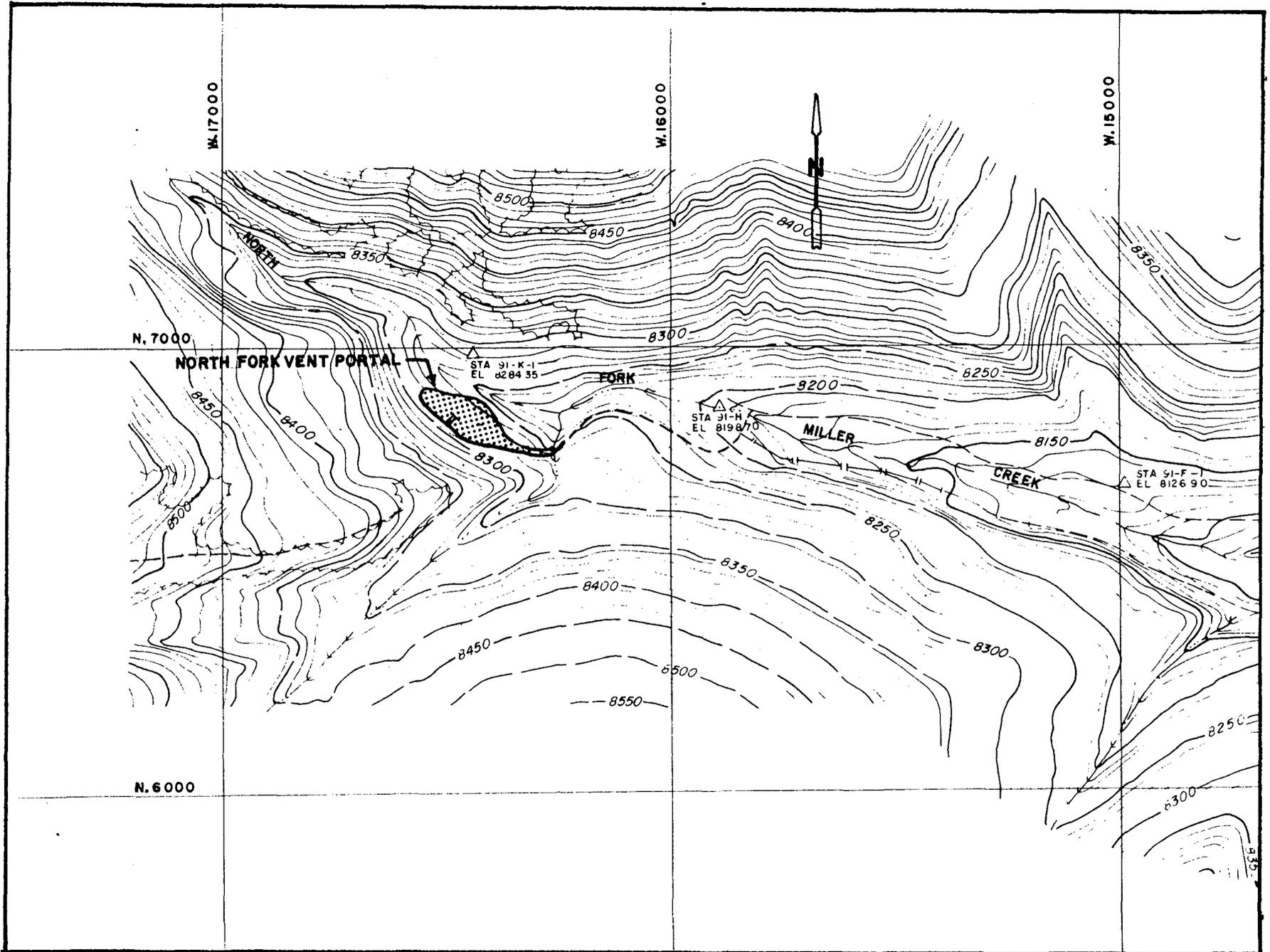
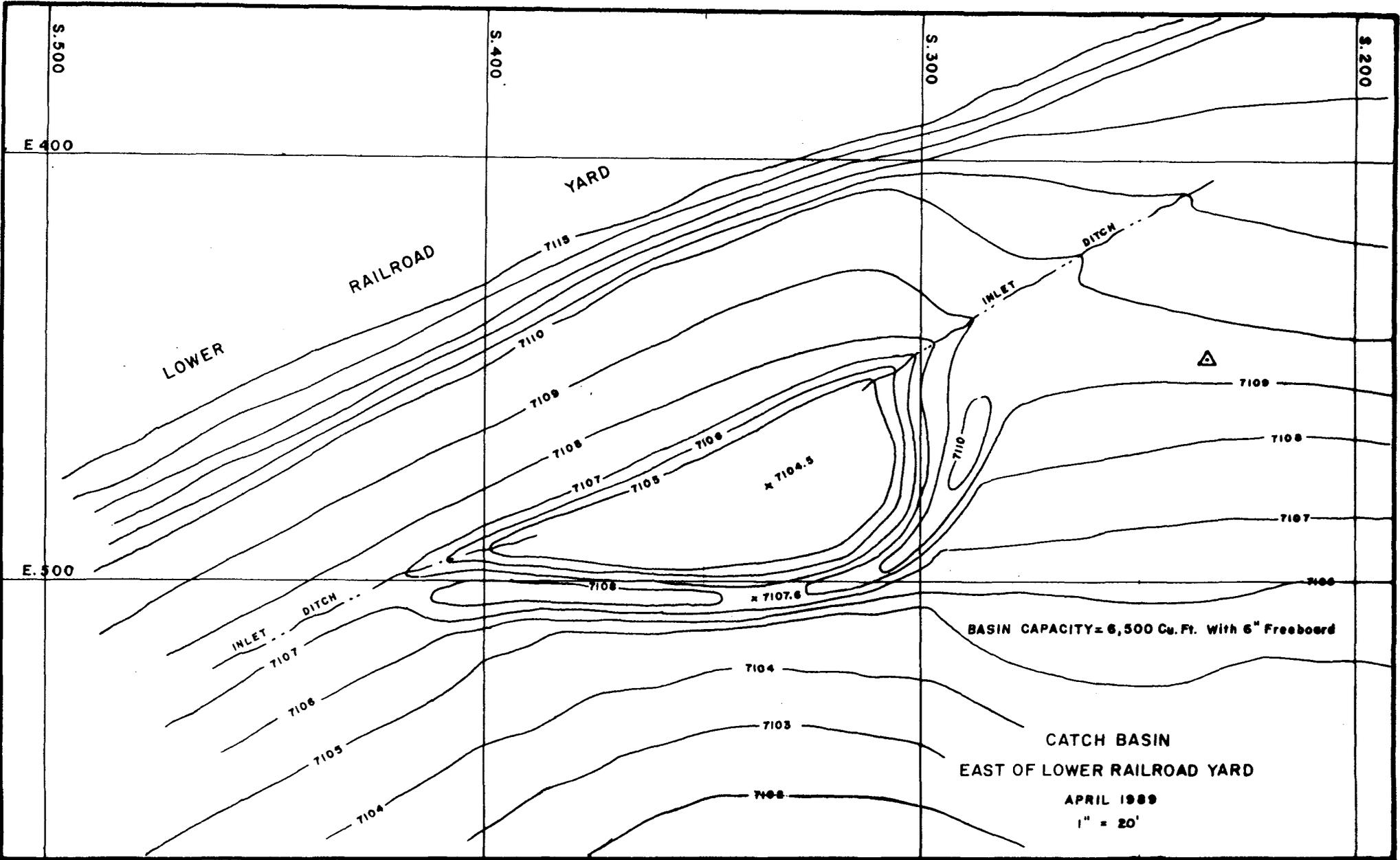


FIG.8 SMALL AREA EXEMPTION NORTH FORK VENT PORTAL PAD



BASIN CAPACITY = 6,500 Cu. Ft. With 6" Freeboard

CATCH BASIN  
EAST OF LOWER RAILROAD YARD

APRIL 1989  
1" = 20'

VOLUME OF CATCH BASIN EAST  
OF LOWER RAILROAD YARD

BASIN CAPACITY = 6,500 FT<sup>3</sup>

RUNOFF CURVE NUMBER = 74

REQUIRED CAPACITY = 5,929.172 FT<sup>3</sup>  
(from storm run-  
off estimate)

CONCLUSION: CATCH BASIN AS CURRENTLY EXISTS WILL ADEQUATELY  
HANDLE RUNOFF FROM THE DESIGN STORM

STORM RUNOFF ESTIMATE

FOR

AREA CONTRIBUTING TO CATCH BASIN EAST OF LOWER RAILROAD YARD

p = Precipitation Depth (in.)

$$p := 2.25 \text{ in. (10 yr., 24 hr. storm at Hiawatha)}$$

A = Area Contributing to Catch Basin (ft.)

$$A := 150400 \text{ sq. ft.}$$

l = Hydraulic Length of Drainage Basin (ft.)

$$l := 500 \text{ ft.}$$

Y = Average Slope of Drainage Basin (%)

$$Y := 6 \%$$

CN = Runoff Curve Number

$$CN := 74$$

$$S := \frac{1000}{CN} - 10 \quad S = 3.514$$

L = Watershed Lag (hrs.)

$$L := \frac{1^{0.8} (S + 1)^{0.7}}{1900 Y^{0.5}} \quad L = 0.089 \text{ hr.}$$

Tc = Time of Concentration (hrs.)

$$Tc := \frac{L}{0.6} \quad Tc = 0.148 \text{ hr.}$$

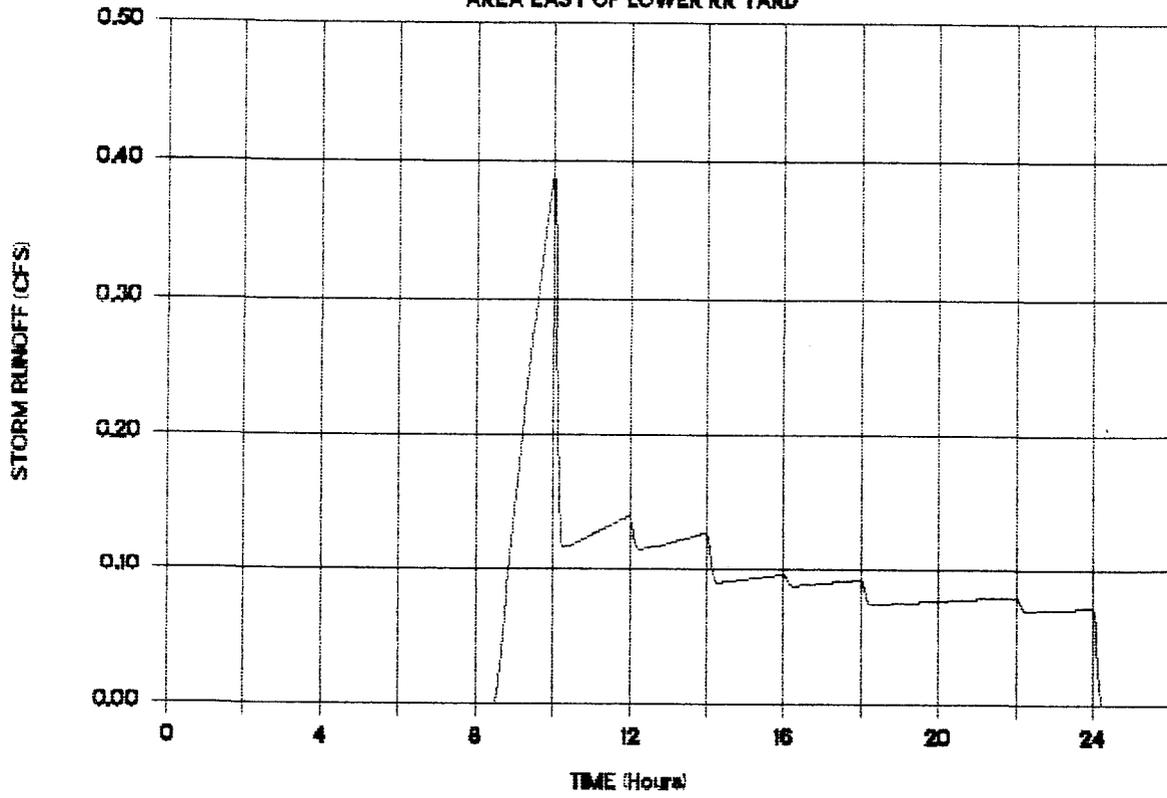
Q = Runoff Volume (in.)

$$Q := \frac{(p - 0.2 \cdot S)^2}{p + 0.8 S} \quad Q = 0.473 \text{ in.}$$

$$\text{Total\_Runoff} := \frac{Q}{12} A \quad \text{Total\_Runoff} = 5929.172 \text{ Cu.Ft.}$$

# STORM RUNOFF DETERMINATION

AREA EAST OF LOWER RR YARD



STORM RUNOFF ESTIMATE

FOR

AREA CONTRIBUTING TO CATCH BASIN ABOVE PREP. PLANT BYPASS CULVERT OUTLET

p = Precipitation Depth (in.)

p := 2.25 in. (10 yr., 24 hr. storm at Hiawatha)

A = Area Contributing to Catch Basin (sq.ft.)

A := 54400 sq.ft.

CN = Runoff curve Number

CN := 60

$S := \frac{1000}{CN} - 10$       S = 6.667

Q = Runoff Volume (in.)

$Q := \frac{(p - 0.2 \cdot S)^2}{p + 0.8 \cdot S}$       Q = 0.111 in.

Total\_Runoff :=  $\frac{Q}{12} \cdot A$       Total\_Runoff = 502.32 cu.ft.

VOLUME OF CATCH BASIN ABOVE  
BYPASS CULVERT OUTLET

Area of Catch Basin = 2000 Ft.<sup>2</sup>

Average Depth of  
Catch Basin = 3.2 Feet  
(Minus .3' Freeboard)

Average Depth x Area  
3.0' x 2000 Ft.<sup>2</sup> = 6000 Ft.<sup>3</sup>

Required Capacity = 502.3 Ft.<sup>3</sup>  
(From Storm Runoff Estimate)

Conclusion: Catch basin as currently designed, should adequately handle runoff from design storm.

APPENDIX III-19

United States Fuel Company  
Middle Fork Loadout Facility

April 20, 1989

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

March 1, 1989

F. Burnell Cordner, Executive Secretary  
State of Utah Department of Health  
Division of Environmental Health  
288 North 1460 West P.O. Box 16690  
Salt Lake City, Utah 84116

Re: Notice of Intent, Modification of  
Coal Loadout Facility

Dear Mr. Cordner:

In accordance with Utah Air Conservation regulations Section 3.1, United States Fuel Company is filing a Notice of Intent to modify a coal loadout facility. The facility is located near U.S. Fuel's King No. 4 mine, approximately 3.5 miles west of Hiawatha, Utah.

The existing facility consists of a 42 inch stacking conveyor which extends from within the King 4 mine, a 13,000 ton raw coal stockpile and a 60 inch reclaim conveyor. Coal drawn from the stockpile is loaded into highway type, tractor trailer haul trucks and transported approximately 3.5 miles to a coal processing plant at Hiawatha. This facility is proposed to be modified by adding a screen and hammer mill crusher system and a 100 ton truck loading silo near the discharge end of the existing 60 inch reclaim conveyor. See attached drawings.

This proposal will allow U.S. Fuel to haul sized mine run coal direct to a unit train loadout site near Helper, Utah without having to unload, stack and reload it several times at the processing plant. It will also greatly reduce the amount of spillage which now occurs due to loading trailers on a small radius curve from a conveyor drop chute.

The modification will begin at the discharge chute of the 60 inch reclaim conveyor. At this point a flop gate will be installed to direct coal to a 36 inch by 30 foot transfer conveyor to a vibrating screen. The screen oversize will go to a hammer mill crusher. The undersize will bypass the crusher and both products will be conveyed to a 100 ton loadout silo. The silo feed system will consist of one 36 inch by 35 foot conveyor and one 36 inch by 126 foot conveyor. The conveyors will have dust covers and transfer chutes will be enclosed. Trucks will load out beneath the silo by means of a hydraulically operated clamshell type feed gate. The gate will be activated electronically by the truck drivers. The system will be capable of handling 500 tons per hour, though the average throughput will be approximately 200 tons per hour for two shifts per work day. A screen analysis and proximate analysis showing moisture content of mine run coal is attached.



F. Bunnell Cordner, Executive Secretary  
March 1, 1989  
Page 2

If additional information is required, please call me at 637-2252 or Fred Busch of Savage Coal Services in Salt Lake at 268-9500. Please let me know if there is any reason why we cannot start work on this project within a week or two.

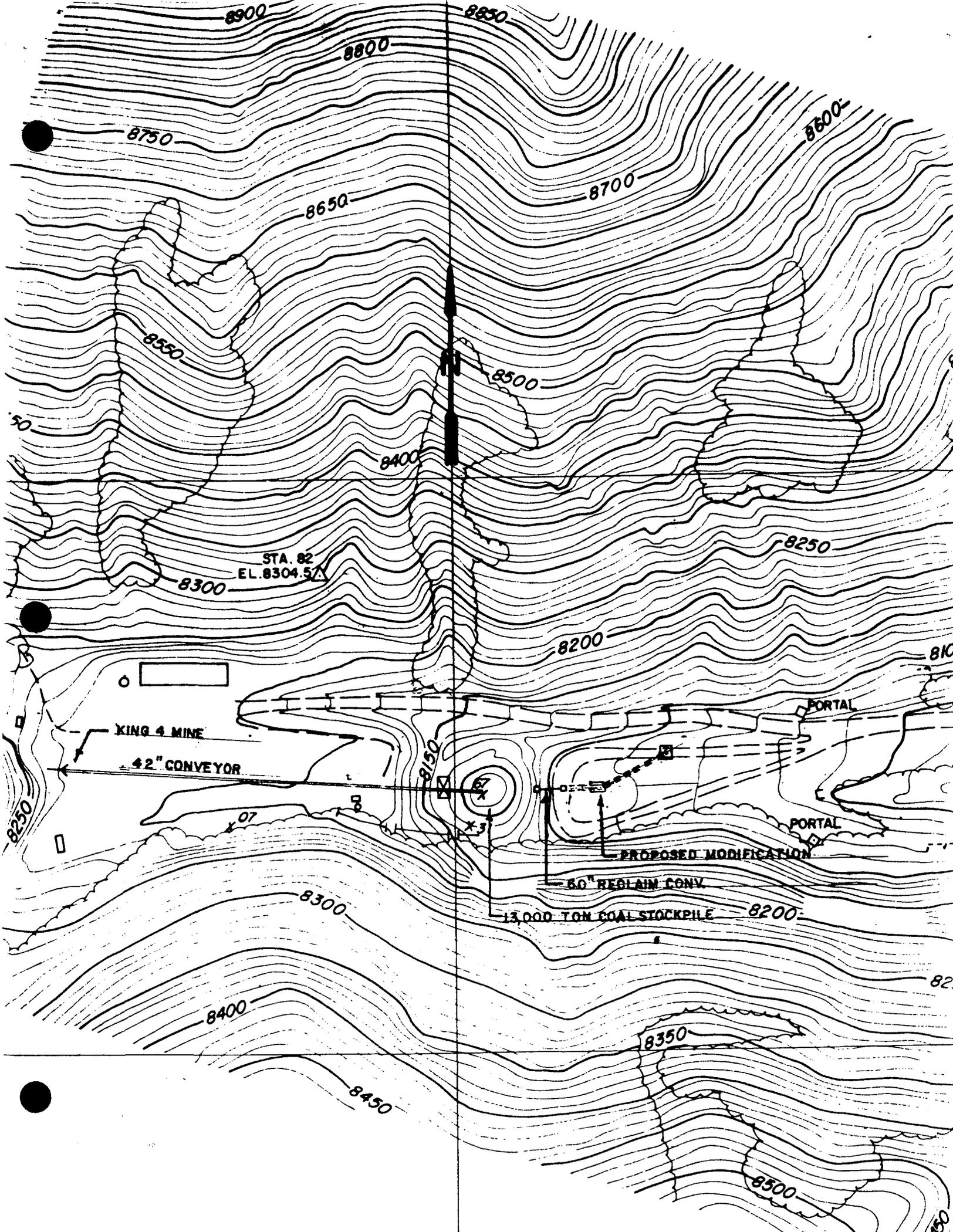
Sincerely,

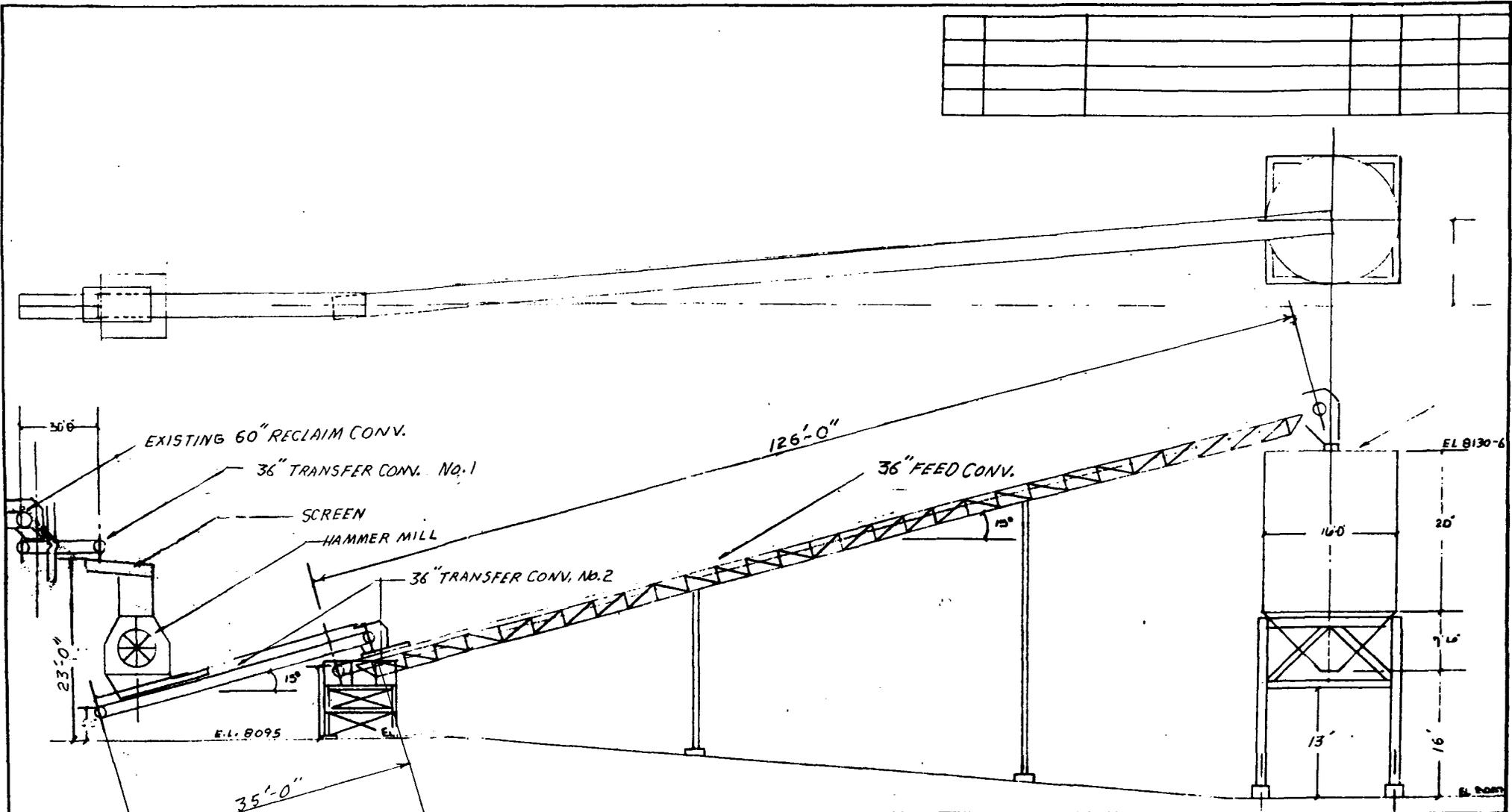


Robert Eccli  
Sr. Engineer

RE:1j

Attachments:






**NOTICE:**  
 This drawing is the exclusive property of Savage Manufacturing Corporation. All information contained herein is confidential. It is to be used only for the specific conditions stated and is not to be re-used or used directly or indirectly in any manufacturing to be made or conducted according to the drawing without prior written permission of Savage Manufacturing Corporation.  
 Copyright 1987 by Savage Manufacturing Corporation ©

-0		PN	DESCRIPTION	MATERIAL	MAT'L NO.
<b>PARTS LIST</b>					
PART STATUS	SCALE	BY	DATE	 <b>SAVAGE MANUFACTURING CORP.</b> 319 WEST 7 <sup>th</sup> SOUTH—P.O. BOX 448 PLEASANT GROVE, UTAH 84062	
DRAWN	MW	2/27/87			
DESIGN					
CHKD					
APPROVAL				DRAWING TITLE <b>U.S. FUELS CO.</b> <b>HIAWATHA LOADOUT EX-ANAL</b>	
PROJECT DESCRIPTION		PROJECT NO.	DRAWING NUMBER	CHG STAT	SHEET
					REV



General Offices: 583 East Main St., Price, Utah 84501  
Laboratory: Depot Building, Hiawatha, Utah 84527, 801-637-2252

Submitted to :

January 17, 1989

United States Fuel Company  
P. O. Box A  
Hiawatha, Utah 84527

Date Sampled : Month of December 1988

Sample Identification :

Date Received : 12/31/88

Monthly Composite  
December 1988  
Raw Coal

Sampled by : USF

Identification by : USF

Analysis Report # : 1910

---

**CERTIFICATE OF ANALYSIS**

---

Short Proximate

	As Received Basis	Dry Basis
% Moisture	7.56	-----
% Ash	11.89	12.86
% Sulfur	0.62	0.67
Btu/Lb.	11539	12483
Moisture Ash Free Btu/Lb.		14325

Respectfully submitted,  
HORIZON LABORATORIES, INC.

  
Laboratory Manager

UNITED STATES FUEL COMPANY  
 SCREEN ANALYSIS  
 KING 4 8/30/88  
 SAMPLE 1

FRACTION	% OF SAMPLE	CUMULATIVE %	% ASH	% MOISTURE
+2"	18.32			
2" X 1 5/8"	3.01	21.33		
1 5/8" X 1 1/4"	8.23	29.56		
1 1/4" X 1"	1.99	31.55		
1" X 3/4"	6.79	38.34		
3/4" X 1/2"	10.28	48.62		
1/2" X 1/4"	17.51	66.13		
1/4" X 28 MESH	25.18	91.31		
28 MESH X 40 MESH	1.56	92.87		
40 MESH X 50 MESH	1.56	94.43		
50 MESH X 100 MESH	2.45	96.88		
100 MESH X 0	3.12	100.00		

COMMENTS: < 50 MESH = 9.97%

APPENDIX III-20

U. S. Fuel Company

Diversion Designs

April 20, 1989

# CALCULATION SHEET

UNITED STATES FUEL COMPANY  
ENGINEERING DEPT., HIAWATHA, UTAH

COMPUTATION FOR \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
REF. DRAWING \_\_\_\_\_

INDEX NO. \_\_\_\_\_ SHEET NO. \_\_\_\_\_  
PLACE \_\_\_\_\_  
JOB \_\_\_\_\_  
DATE 2-10-89  
COMPUTED BY \_\_\_\_\_  
CHECKED BY \_\_\_\_\_  
REVISED \_\_\_\_\_

## PART 2 OF 3 OF TDN 88-2-116-2

DIVERSION DITCH DESIGNS FOR THE MIDDLE FORK LOADOUT YARD, THE UPPER RAILYARD AND THE SOUTH FORK MINE YARD.

### PEAK FLOWS FROM DESIGN STORMS (FROM APPENDIX VII-1 OF PERMIT)

<u>SITE</u>	<u>PEAK FLOW</u>
MIDDLE FORK YARD	2.33 CFS
UPPER RAILYARD	2.32 CFS
SOUTH FORK YARD	7.28 CFS

VELOCITY OF FLOW DURING PEAK RUNOFF IS CALCULATED FOR EACH DITCH USING THE MANNING FORMULA.

$$V = \frac{1.486}{n} R^{0.67} S^{0.5}$$

V = VELOCITY OF FLOW (FT/SEC)

n = MANNING'S ROUGHNESS COEFF. = 0.033

A = CROSS SECTIONAL AREA OF FLOW (FT<sup>2</sup>)

P = WETTED PERIMETER OF CHANNEL (FT)

R = HYDRAULIC RADIUS =  $\frac{A}{P}$  (FT)

S = HYDRAULIC SLOPE (FT/FOOT)

UNITED STATES FUEL COMPANY  
ENGINEERING DEPT., HIAWATHA, UTAH

COMPUTATION FOR MIDDLE FORK DIVERSION DITCHES

REF. DRAWING \_\_\_\_\_

INDEX NO. \_\_\_\_\_ SHEET NO. \_\_\_\_\_

PLACE \_\_\_\_\_

JOB \_\_\_\_\_

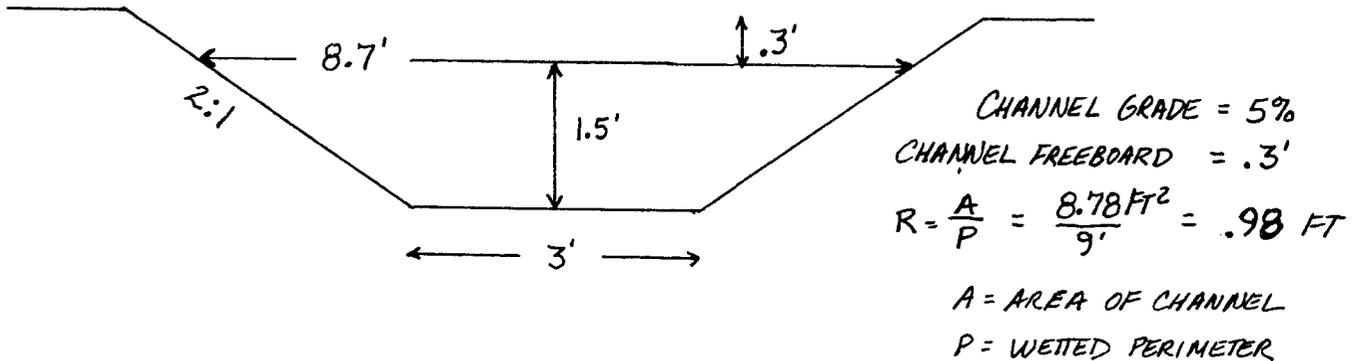
DATE \_\_\_\_\_

COMPUTED BY \_\_\_\_\_

CHECKED BY \_\_\_\_\_

REVISED \_\_\_\_\_

① DIVERSION DITCH NORTH OF TRUCK LOOP - TYPICAL MINIMUM CROSS-SECTION



② DIVERSION DITCH IN CENTER OF TRUCK LOOP - TYPICAL MINIMUM CROSS-SECTION  
- SAME AS ABOVE -

USING  $V = \frac{1.486}{n} R^{.67} S^{.5}$

WHERE:

V = VELOCITY (FT/SEC)

n = ROUGHNESS COEFFICIENT = .033

R = HYDRAULIC RADIUS =  $\frac{A}{P}$

S = HYDRAULIC SLOPE = FEET/FOOT

$$V = \frac{1.486}{.033} (.98)^{.67} (.05)^{.5} = 9.93 \text{ FT/SEC}$$

$$\text{CAPACITY OF DITCH} = VA = 9.93 \text{ FT/SEC} \times 8.78 \text{ FT}^2 = 87.19 \text{ FT}^3/\text{SEC}$$

$$\text{CAPACITY REQUIRED FOR 10 YEAR, 24 HOUR EVENT} = 2.33 \text{ FT}^3/\text{SEC}$$

# CALCULATION SHEET

INDEX NO. \_\_\_\_\_ SHEET NO. \_\_\_\_\_

UNITED STATES FUEL COMPANY  
ENGINEERING DEPT., HIAWATHA, UTAH

PLACE \_\_\_\_\_

JOB \_\_\_\_\_

COMPUTATION FOR \_\_\_\_\_

DATE 2-10-89

COMPUTED BY \_\_\_\_\_

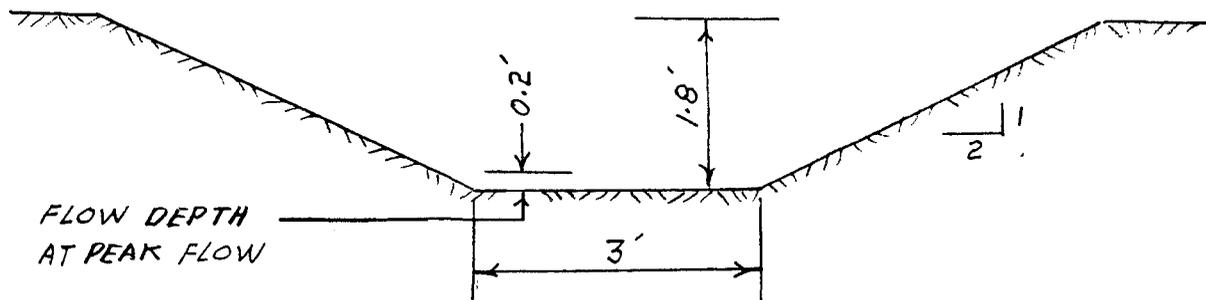
CHECKED BY \_\_\_\_\_

MIDDLE FORK DIVERSION DITCHES

REVISED \_\_\_\_\_

REF. DRAWING \_\_\_\_\_

## 1- DIVERSION DITCH NORTH OF TRUCK LOOP - TYPICAL CROSS-SECTION



## 2- DIVERSION DITCH IN CENTER OF TRUCK LOOP - SAME AS ABOVE

$$n = 0.033$$

$$A = 0.680 \text{ FT}^2$$

$$P = 3.894 \text{ FT}$$

$$R = \frac{A}{P} = \frac{0.680}{3.894} = 0.175 \text{ FT}$$

$$S = 0.067 \text{ FT/FT}$$

$$V = \frac{1.486}{0.033} (0.175)^{0.67} (0.067)^{0.5}$$

$$V = 3.63 \text{ FT/SEC}$$

UNITED STATES FUEL COMPANY  
ENGINEERING DEPT., HIAWATHA, UTAH

PLACE \_\_\_\_\_

COMPUTATION FOR LIPPER RAIL YARD  
DIVERSION DITCH TO  
SEDIMENT POND

JOB \_\_\_\_\_

DATE 9-15-88

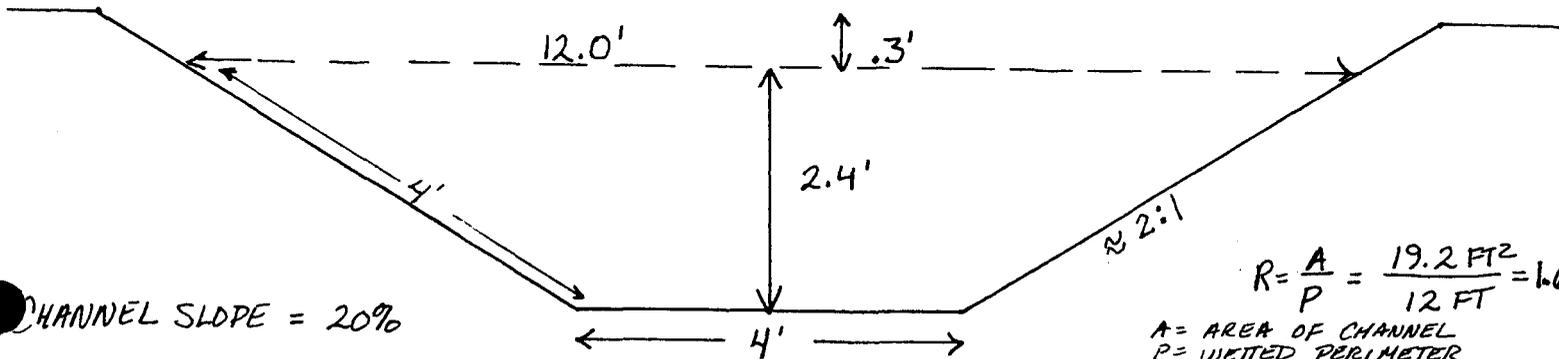
COMPUTED BY \_\_\_\_\_

CHECKED BY \_\_\_\_\_

REF. DRAWING \_\_\_\_\_

REVISED \_\_\_\_\_

DIVERSION DITCH FROM YARD TO SEDIMENT POND  
TYPICAL MINIMUM CROSS-SECTION



CHANNEL SLOPE = 20%  
CHANNEL FREEBOARD = .3'

$$R = \frac{A}{P} = \frac{19.2 \text{ FT}^2}{12 \text{ FT}} = 1.6$$

A = AREA OF CHANNEL  
P = WETTED PERIMETER

- V = VELOCITY (FT/SEC)
- n = MANNINGS ROUGHNESS COEFFICIENT = 0.033
- R = HYDRAULIC RADIUS =  $\frac{A}{P}$
- S = HYDRAULIC SLOPE (FEET/FOOT)

USING  $V = \frac{1.486}{n} R^{.67} S^{.5}$  WHERE:

$$V = \frac{1.486}{.033} (1.6)^{.67} (.20)^{.5} = 27.6 \text{ FT/SEC}$$

$$\begin{aligned} \text{CAPACITY OF DITCH} = VA &= 27.6 \text{ FT/SEC} \times 19.2 \text{ FT}^2 \\ &= 529.8 \text{ FT}^3/\text{SEC} \end{aligned}$$

CAPACITY REQUIRED FOR 10 YEAR, 24 HOUR EVENT = 2.32 FT<sup>3</sup>/SEC

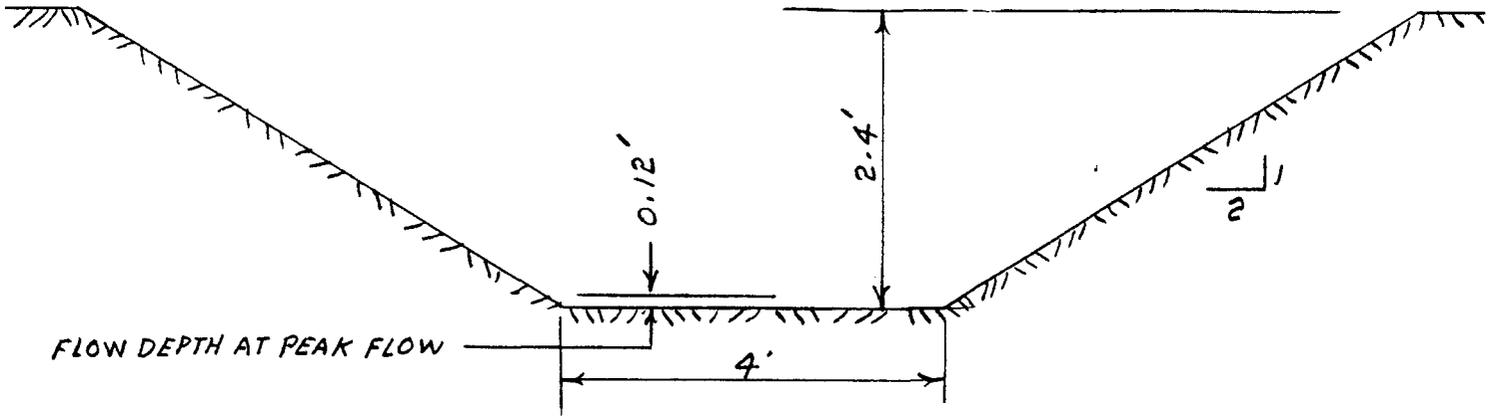
# CALCULATION SHEET

INDEX NO. \_\_\_\_\_ SHEET NO. \_\_\_\_\_  
PLACE \_\_\_\_\_  
JOB \_\_\_\_\_  
DATE 2-10-89  
COMPUTED BY \_\_\_\_\_  
CHECKED BY \_\_\_\_\_  
REVISED \_\_\_\_\_

UNITED STATES FUEL COMPANY  
ENGINEERING DEPT., HIAWATHA, UTAH

COMPUTATION FOR \_\_\_\_\_  
UPPER RAIL YARD DIVERSION DITCH  
TO SEDIMENT POND  
REF. DRAWING \_\_\_\_\_

## 1- DIVERSION DITCH FROM RAIL YARD TO SED. POND - TYPICAL CROSS SECTION



$$n = 0.033$$

$$A = 0.509 \text{ FT}^2$$

$$P = 4.537 \text{ FT}$$

$$R = \frac{A}{P} = \frac{0.509}{4.537} = 0.112 \text{ FT.}$$

$$S = 0.20 \text{ FT/FT}$$

$$V = \frac{1.486}{0.033} (0.112)^{0.67} (0.20)^{0.5}$$

$$V = 4.65 \text{ FT/SEC.}$$

UNITED STATES FUEL COMPANY  
ENGINEERING DEPT., HIAWATHA, UTAH

PLACE \_\_\_\_\_

COMPUTATION FOR SOUTH FORK YARD  
DIVERSION DITCH TO  
SEDIMENT POND

JOB \_\_\_\_\_

DATE 9-15-88

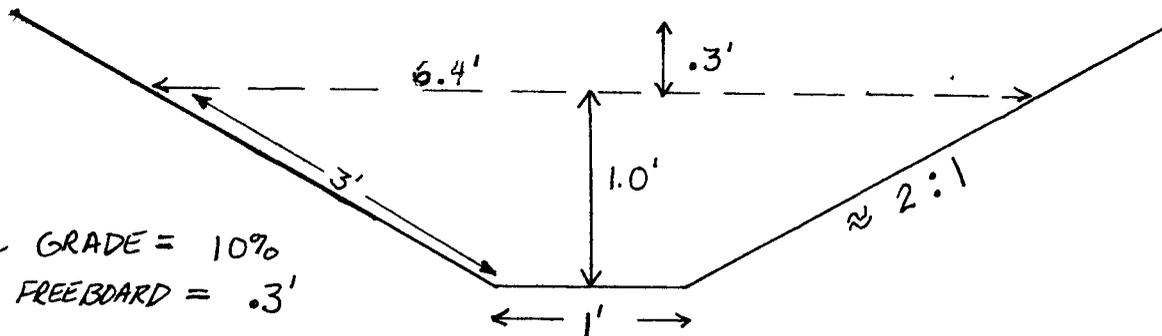
COMPUTED BY \_\_\_\_\_

CHECKED BY \_\_\_\_\_

REF. DRAWING \_\_\_\_\_

REVISED \_\_\_\_\_

MAIN DIVERSION DITCH FROM MINE YARD TO SEDIMENT POND  
TYPICAL CROSS SECTION



CHANNEL GRADE = 10%  
CHANNEL FREEBOARD = .3'

$$R = \frac{A}{P} = .53 \text{ FT}$$

A = AREA OF CHANNEL  
P = WETTED PERIMETER

USING  $V = \frac{1.486}{n} R^{.67} S^{.5}$  WHERE :

V = VELOCITY (FT/SEC)

n = ROUGHNESS COEFFICIENT = 0.033

R = HYDRAULIC RADIUS =  $\frac{A}{P}$

S = HYDRAULIC SLOPE = FEET/FOOT

$$V = \frac{1.486}{.033} (.53)^{.67} (.10)^{.5} = 9.31 \text{ FT/SEC}$$

$$\text{CAPACITY OF DITCH} = VA = 9.31 \text{ FT/SEC} \times 3.7 \text{ FT}^2 = 34.45 \text{ FT}^3/\text{SEC}$$

$$\text{CAPACITY NEEDED FOR 10 YEAR, 24 HOUR STORM} = 7.28 \text{ FT}^3/\text{SEC}$$

# CALCULATION SHEET

UNITED STATES FUEL COMPANY  
ENGINEERING DEPT., HIAWATHA, UTAH

COMPUTATION FOR \_\_\_\_\_

SOUTH FORK YARD DIVERSION DITCH  
TO SEDIMENT POND

REF. DRAWING \_\_\_\_\_

INDEX NO. \_\_\_\_\_ SHEET NO. \_\_\_\_\_

PLACE \_\_\_\_\_

JOB \_\_\_\_\_

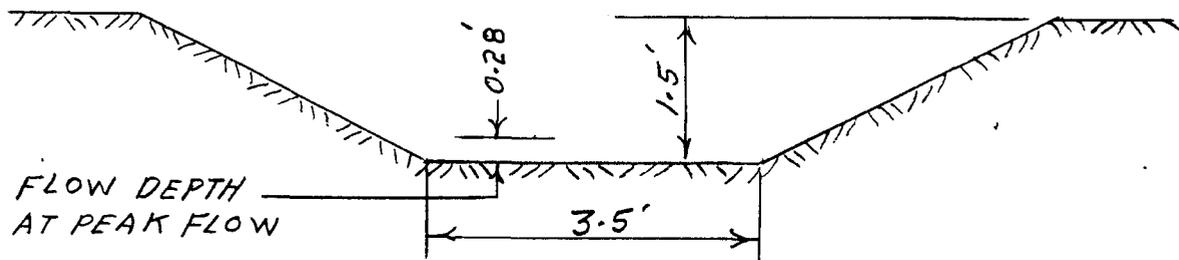
DATE 2-10-89

COMPUTED BY \_\_\_\_\_

CHECKED BY \_\_\_\_\_

REVISED \_\_\_\_\_

1- DIVERSION DITCH FROM YARD TO SED. POND - TYPICAL CROSS SECTION



$$n = 0.033$$

$$A = 1.137 \text{ FT}^2$$

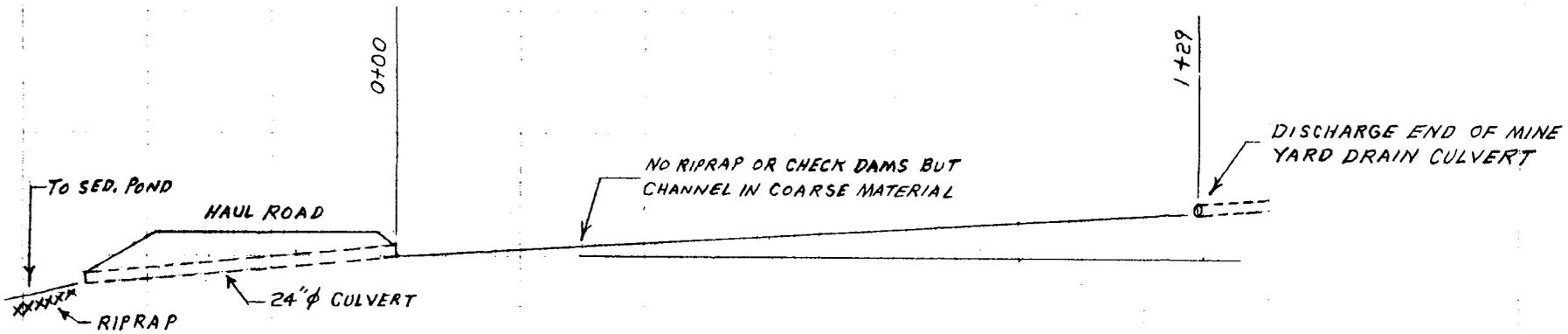
$$P = 4.752 \text{ FT}$$

$$R = \frac{A}{P} = \frac{1.137}{4.752} = 0.239$$

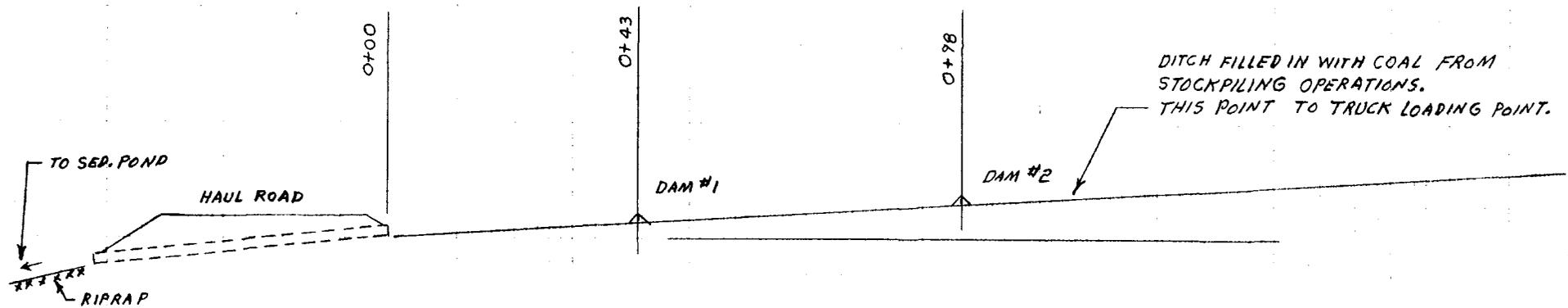
$$S = 0.15 \text{ FT/FT.}$$

$$V = \frac{1.486}{0.033} (0.239)^{0.67} (0.15)^{0.5}$$

$$V = 6.68 \text{ FT/SEC}$$



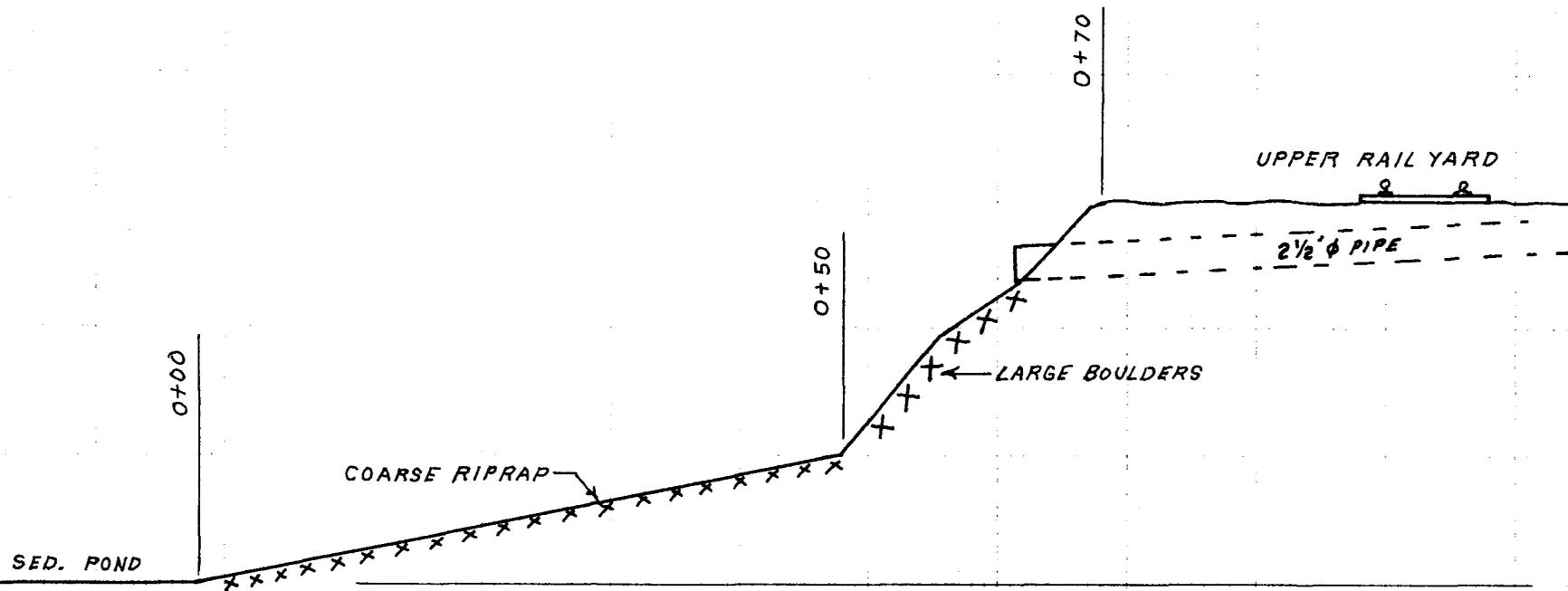
MIDDLE FORK  
 PROFILE OF DIVERSION DITCH NORTH OF TRUCK LOOP  
 EXISTING CONDITIONS MARCH 1989  
 SCALE 1" = 20' (HORIZ. & VERT.)



MIDDLE FORK  
PROFILE OF DITCH IN CENTER OF TRUCK LOOP

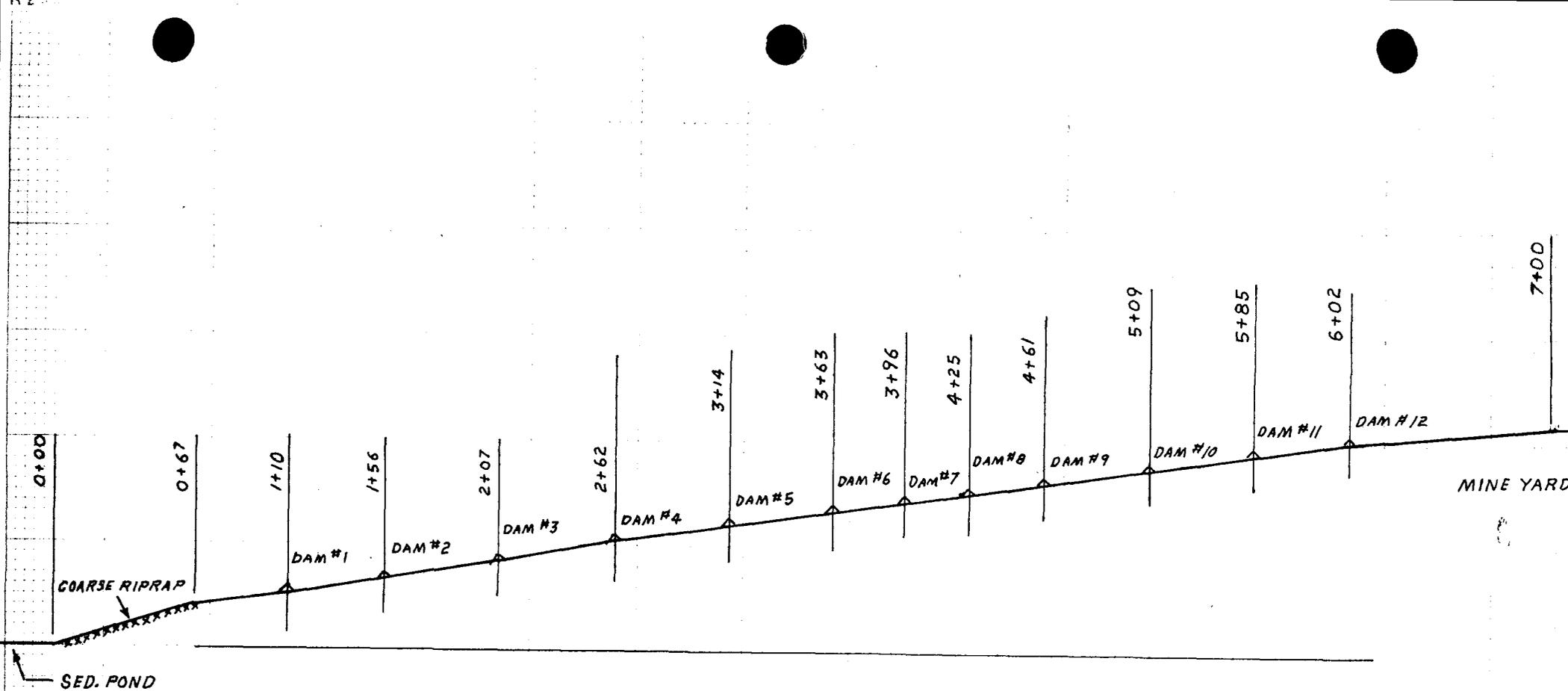
EXISTING CONDITIONS MARCH 1989

SCALE 1" = 20' (HORIZ. & VERT.)



PROFILE OF DIVERSION DITCH FROM UPPER RAIL YARD TO SEDIMENT POND  
 SHOWING EXISTING CONDITIONS  
 MARCH 1989

SCALE 1" = 10' (HORIZ. & VERT.)



PROFILE OF DIVERSION DITCH FROM SOUTH FORK YARD TO SEDIMENT POND

SHOWING EXISTING CHECK DAMS

SCALE 1" = 50' (HORIZ. & VERT.)

MARCH 1989

File AC 107/011-88F  
pending

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

March 21, 1989

RECEIVED  
MAR 24 1989

DIVISION OF  
OIL, GAS & MINING

Ms. Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Ms. Linner:

Enclosed are sketches documenting existing conditions of diversion ditches at South Fork, Middle Fork and the upper rail yard. These sketches are in connection with TDN 88-2-116-2 and personnel communications with Mike DeWeese regarding design calculations for the diversions.

Sincerely,

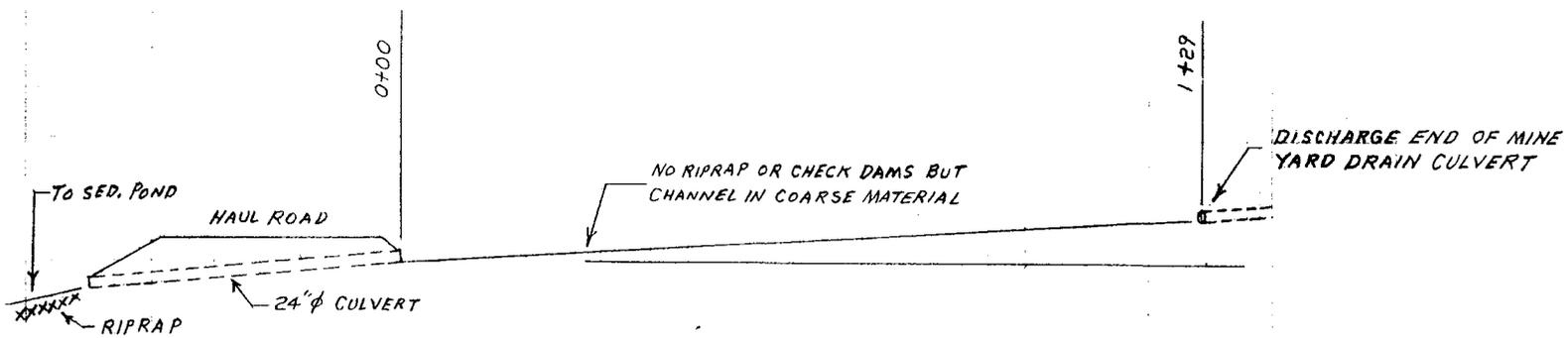
*Robert Eccli*

Robert Eccli  
Sr. Engineer

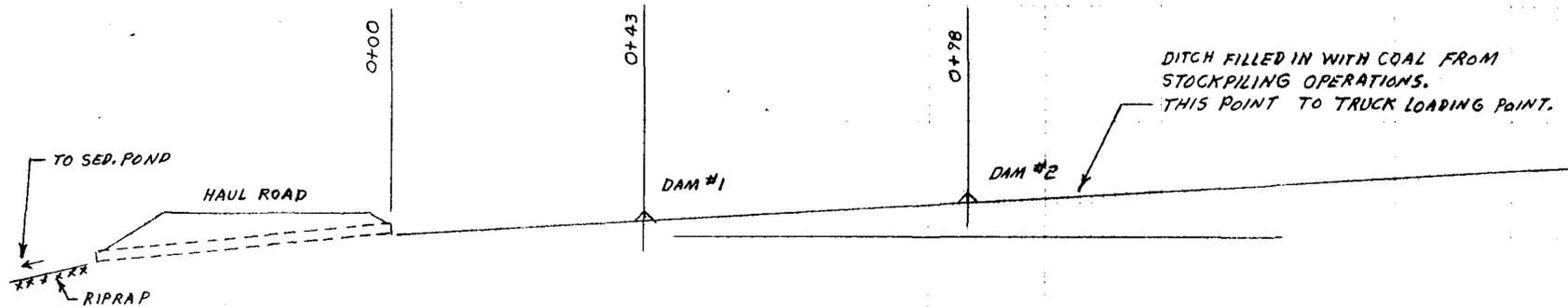
RE:1j

Enclosures:

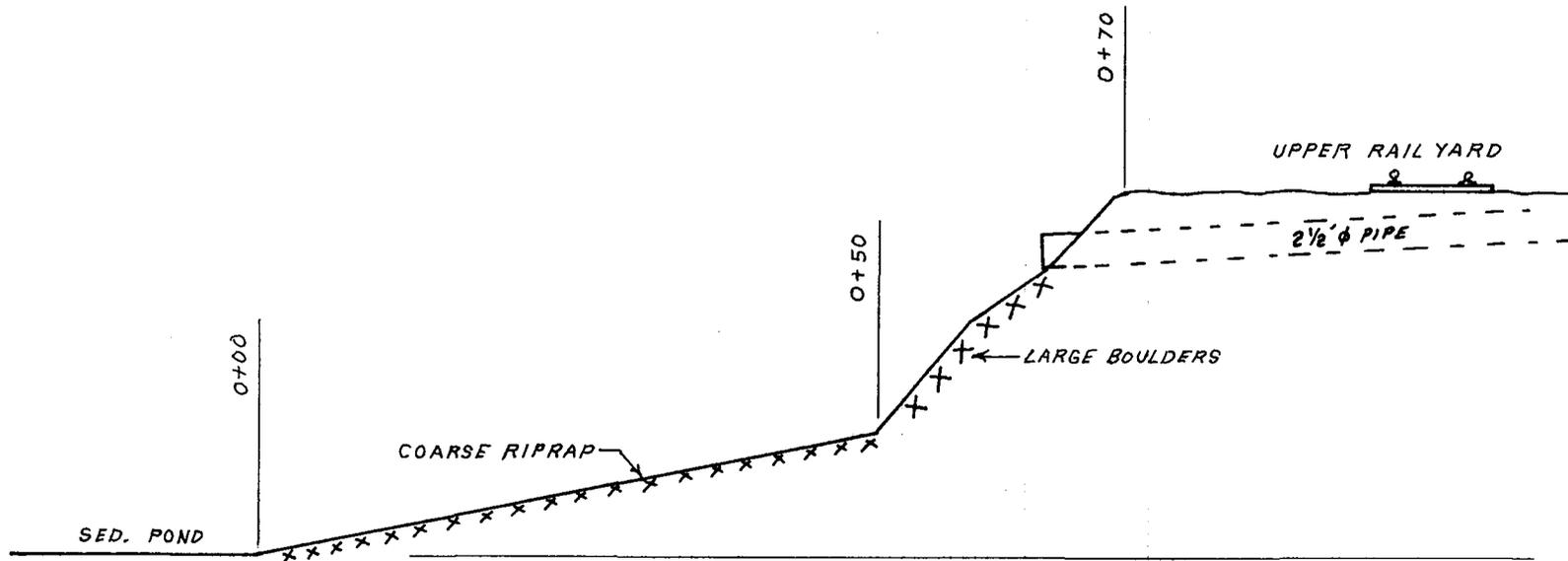




MIDDLE FORK  
PROFILE OF DIVERSION DITCH NORTH OF TRUCK LOOP  
 EXISTING CONDITIONS MARCH 1989  
 SCALE 1" = 20' (HORIZ. & VERT.)



MIDDLE FORK  
PROFILE OF DITCH IN CENTER OF TRUCK LOOP  
 EXISTING CONDITIONS MARCH 1969  
 SCALE 1" = 20' (HORIZ. & VERT.)

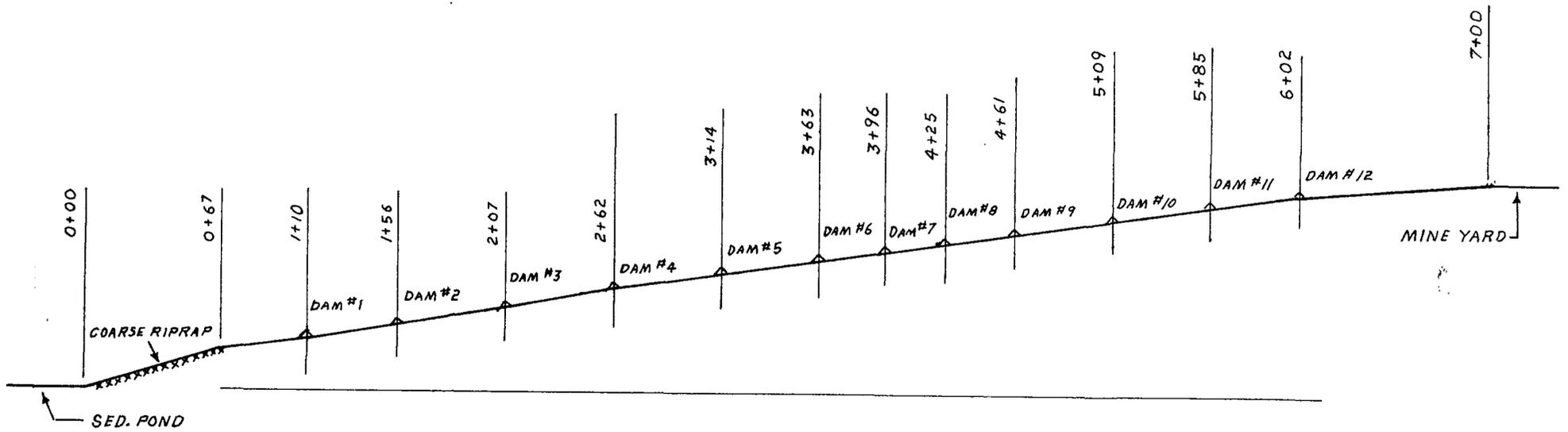


PROFILE OF DIVERSION DITCH FROM UPPER RAIL YARD TO SEDIMENT POND

SHOWING EXISTING CONDITIONS

MARCH 1989

SCALE 1" = 10' (HORIZ. & VERT.)



PROFILE OF DIVERSION DITCH FROM SOUTH FORK YARD TO SEDIMENT POND

SHOWING EXISTING CHECK DAMS

SCALE 1"=50' (HORIZ. & VERT.)

MARCH 1989

Pending  
file

File ACT 1007/011 #2  
cc: L. Knutler  
D. Haddock

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

June 23, 1989

RECEIVED  
JUN 26 1989

Ms. Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

DIVISION OF  
OIL, GAS & MINING

Re: Mid-Permit Term Review, Hiawatha Mines  
Complex, ACT/007/011

Dear Ms. Linner:

In response to items 3 and 4 of your letter dated May 19, 1989, please find the following information enclosed.

1. Letter to EPA and Utah Department of Health addressing the overflow discharge from the South Fork water tank.
2. Results of rip rap size analysis performed for the Middle Fork, South Fork and upper railroad yard diversions.

Sincerely,

*Robert Eccli*

Robert Eccli  
Sr. Mining Engineer

RE:lj

Enclosure:



## SIZE ANALYSIS OF DIVERSION DITCH GRAVEL

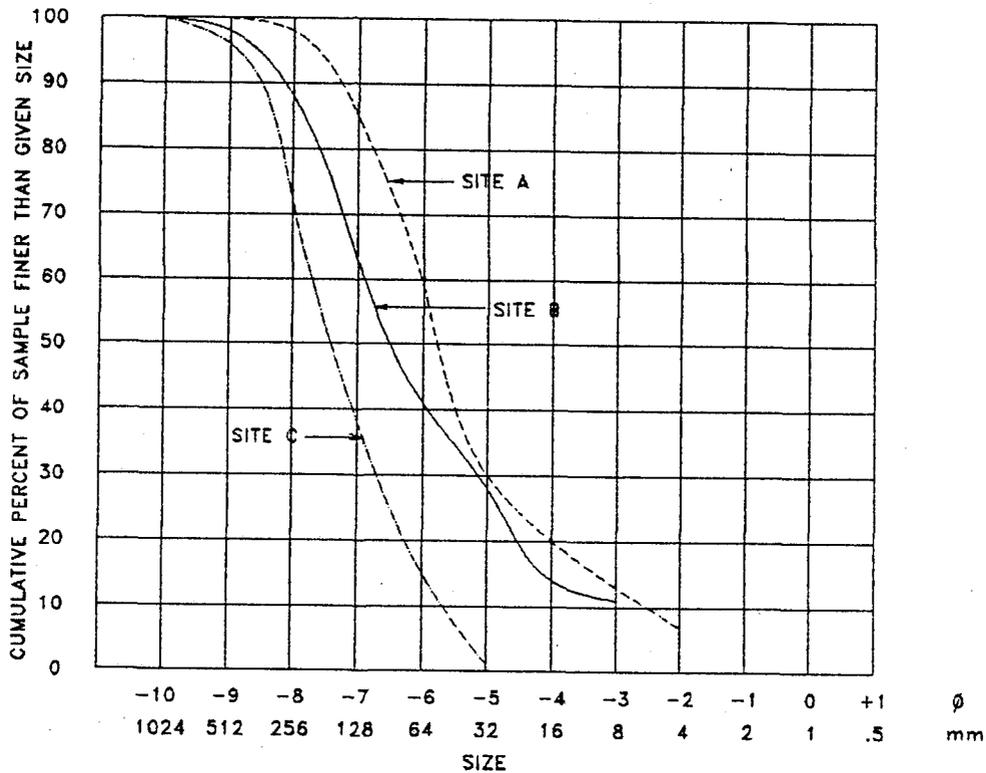
A = Diversion Ditch North of Haul Road Loop at Middle Fork

B = Diversion Ditch From South Fork Mine Yard to Sediment Pond

C = Diversion Ditch From Upper Rail Yard to Sediment Pond

Size		100 Samples per Site		
mm	$\phi$	Site A	Site B	Site C
1	0	-	-	-
2	-1	-	-	-
4	-2	7	-	-
8	-3	6	11	-
16	-4	7	3	-
32	-5	10	14	1
64	-6	29	13	14
128	-7	26	22	23
256	-8	18	25	34
512	-9	2	10	24
1024	-10	-	2	4

$\phi = -\log_2$  diameter in mm



### Reference

M. Gordon Wolman, A method of sampling coarse river-bed gravel, Trans. AGU, V. 35, No. 6, pp. 951-956, 1954

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

June 20, 1989

Mr. Patrick J. Godsil, Chief  
Compliance Branch (8WM-C)  
Water Management Division  
999 18th Street, Suite 500  
Denver, Colorado 80202-2405

Re: New Discharge Point, NPDES  
Permit No. UT-0023094

Dear Mr. Godsil:

This is to notify you of a new discharge point within United States Fuel Company's operations boundary.

The discharge is from a culinary water tank overflow pipe located near the King No. 6 mine surface facilities (Lat. 39°-28'-51", Long 111°-03'-16"). Water from within the King 6 mine is pumped to the water tank intermittently by a time controlled pump. Occasionally some water overflows the tank and is discharged to the left fork of Miller Creek, an intermittent stream.

This point has been assigned the number D013 and is shown on the enclosed area map. It will be monitored in accordance with requirements of our existing permit, pending comments by your office.

If you have questions please give me a call at (801) 637-2252.

Sincerely,

*Robert Eccli'*

Robert Eccli  
Sr. Mining Engineer

RE:l j

cc: Mr. Donald A. Hilden, Chief  
Permits 7 Compliance Section  
Bureau of Water Pollution Control  
Utah Department of Health  
P.O. Box 16690  
288 North 1460 West  
Salt Lake City, Utah 84116



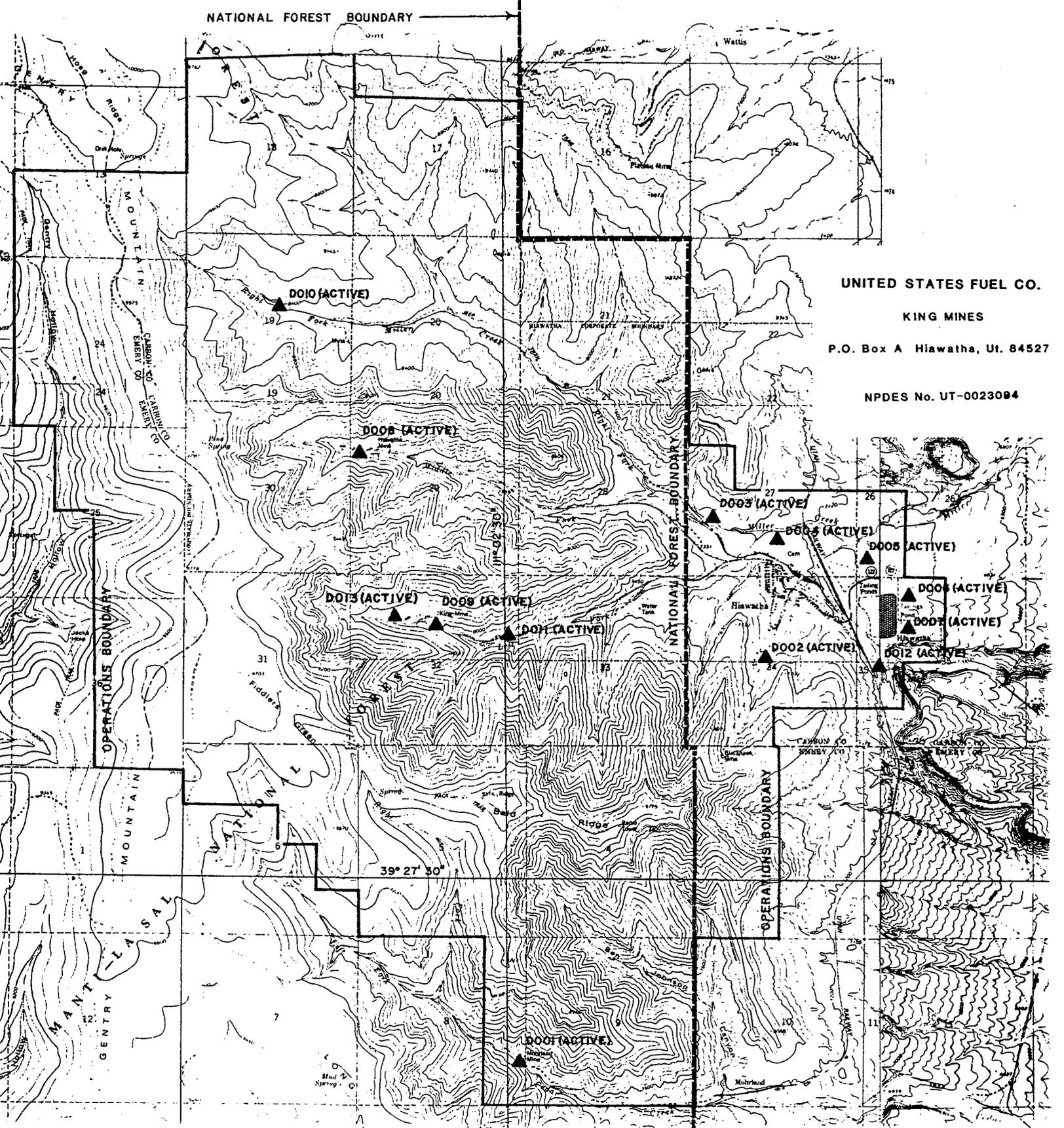
NATIONAL FOREST BOUNDARY

UNITED STATES FUEL CO.

KING MINES

P.O. Box A Hiawatha, Ut. 84527

NPDES No. UT-0023094



File ACT 1057/0117

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

May 30, 1989

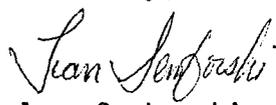
Ms. Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Sue:

In response to concerns made in your May 19, 1989 letter we would like to respond with an informal submittal for review. After reviewing permit information concerning slurry ponds and refuse piles it was apparent some of this material has become dated and other material difficult to locate. Since the purpose of the midterm permit review appears to be to update and reorganize, the information requested in Item 1 on Page 2 would eventually become incorporated into the permit. However, since this information must be provided by July 14, 1989 a revision of Chapter XII was made which expands the text, references appropriate appendices and relative portions of other parts of the permit and updates the status of each pond and refuse pile. Because the slurry ponds and refuse piles are associated with various other aspects addressed under different portions of the permit it would be confusing to put everything discussing slurry ponds and refuse piles into one section. Reorganization of this information appears best suited to discussing the geotechnical aspects of the slurry ponds and refuse piles under one section and referring to reclamation plans and specific site discussions in their respective sections.

Subsection 12.3 Page 5 has been retitled and revised to become Slurry Ponds and Refuse Piles. The enclosed narrative will replace Page 5 in Chapter XII until the final permit revision is made. Also enclosed is a revised Exhibit III-3.

Sincerely,



Jean Semborski  
Environmental Coordinator

JS:lj

Enclosures:

**RECEIVED**  
JUN 08 1989

DIVISION OF  
OIL, GAS & MINING



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Roof Span Design	
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Projected Subsidence Effects	
Subsidence Control and Mitigation Methods	
Subsidence Monitoring Plan	
12.3 STABILITY ANALYSIS OF EARTHEN STRUCTURES	XII-5
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Construction Material Characteristics	
Design Plans	
Stability Analysis	
12.4 APPENDICES	
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XII-2 Coal Core Strength Tests	
XII-3 Slurry Impoundment Stability Approvals by MSHA	
XII-4 Engineering Design Report Reconstruction of Slurry Impoundment No. 1	
XII-5 Stability Investigation Refuse Dams and Slurry Ponds	
XII-6 Geotechnical Report on Coal Process Facility Expansion Project	
XII-7 Soils and Foundation Investigation, Nov. 1978	
XII-8 Soils and Foundation Investigation, Mar. 1979	
XII-9 Material Proposal and Specifications for Storage and Loadout System	

### 12.3 SLURRY PONDS AND REFUSE PILES

Three active slurry impoundment structures currently exist in the U.S. Fuel permit area. They are identified on Exhibit III-3 and are listed below with their MSHA identification numbers:

Slurry Pond #1 - 1211-UT-09-00098-01  
Slurry Pond #4 - 1211-UT-09-00098-02  
Slurry Pond #5 - 1211-UT-09-00098-03

Because of their continual state of change, the topographic contours for the inside (containment) portion of the pond as depicted on Exhibit III-3 may not reflect the amount of slurry contained in the pond. However, Exhibit III-3 accurately depicts the size and location of each of the ponds.

In accordance with 30 CFR 77.216-3 and 817.49 (f) weekly inspections are performed on the active slurry ponds. An annual report concerning changes in the impounding structures during the past year as required by 30 CFR 77.216-4 and 817.49 (h) is submitted to MSHA and to DOGM under the cover of the annual report. The report is certified by a registered engineer. Geotechnical reports concerning the slurry pond embankments can be referenced in Appendix XII-3 and XII-4. A detailed description of the construction and foundation of each pond can be found in Appendix XII-3. Slurry pond No. 2 and 3 no longer exist. Refuse pile No. 2 is being constructed where those two ponds previously existed. A stability analysis of slurry pond No. 4 and No. 5 was conducted in 1976 and the results are contained in Appendix XII-5. All plans were approved by MSHA. Approval letters are included in the correspondence of Appendix XII-3.

Two refuse piles exist near the Hiawatha processing plant. They are Refuse Pile No. 1 - ID 1211-UT-09-00098-04 and Refuse Pile No. 2 - ID 1211-UT-09-00098-05. They are depicted on Exhibit III-3 as well.

Refuse Pile No. 1 is an old abandoned pile which has been regraded in anticipation of being used as a stockpile area. The pile was determined by MSHA to not be hazardous in accordance with 30 CFR 77.215-2. A description of the refuse pile site is given in appendices XII-6, XII-7 and XII-8. These geotechnical reports provide detailed information on the nature and condition of material present in the pile. Exhibits III-3, III-14A and III-20A show the present configuration of the refuse pile.

Appendix III-9 provides a narrative concerning the refuse pile and proposed unit train loadout.

Pages 60-72 in Chapter III (3-21-85 Revision) discuss the physical and chemical characteristics of the refuse and the associated Reclamation Plan.

The refuse pile does not impound water nor is it influenced by groundwater, lechate from acid or toxic waste or by fire. All drainage from the site is contained within the disturbed area by sediment control ponds.

Quarterly inspections are performed on the pile in accordance with UMC 817.82.

Refuse Pile No. 2 is also shown on Exhibit III-3 and is presently active. This site was approved for use in February, 1987 and is currently being utilized for refuse disposal.

The refuse consist of the same type of materials used to construct the slurry pond embankments and described in Chapter III under the Hiawatha slurry and waste disposal site Reclamation Plan. The refuse pile is inspected in accordance with UMC 817.82. Annual certifications are done on both refuse piles.

Appendix XII-3 provides correspondence concerning slurry impoundments and refuse piles.

Refer to the latest annual report for the annual impoundment and refuse pile report and certification.

File Act/007/011  
Pending File (#15)

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527

November 29, 1989

note: Original  
cover letter  
Filed in  
Folder #2

LK.

Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, UT 84180-1203

RECEIVED  
DEC 01 1989

DIVISION OF  
OIL, GAS & MINING

Dear Sue:

Enclosed are five copies of revised Chapter I. The revision is formatted according to the new regulations for Chapter I Permit Application Requirements: General Contents. Some sections such as the violation list, permit verification and insurance forms will be updated and resubmitted prior to the final review of the entire permit submittal.

A copy of revised Chapter I was sent to Daron at the Price office.

Sincerely,



Jean Semborski  
Environmental Coordinator

Enclosure



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## CHAPTER 1 COAL MINE PERMITTING: PERMIT APPLICATION REQUIREMENTS

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	Table I-2 Carpentertown Coal And Coke Mining Permits	11-12
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R614-301-112 IDENTIFICATION OF INTERESTS. AN APPLICATION WILL CONTAIN THE FOLLOWING:

112.100 A STATEMENT AS TO WHETHER THE APPLICANT IS A CORPORATION, PARTNERSHIP, SINGLE PROPRIETORSHIP, ASSOCIATION, OR OTHER BUSINESS ENTITY;

United States Fuel Company is a corporation and is incorporated in the state of Nevada.

112.200 NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF THE APPLICANT, THE OPERATOR (IF DIFFERENT FROM THE APPLICANT), AND THE APPLICANT'S RESIDENT AGENT WHO WILL ACCEPT SERVICE OF PROCESS;

Gary L. Barker, Vice-president and General Manager, 801/637-2252.

112.300 FOR APPLICANTS OTHER THAN SINGLE PROPRIETORSHIPS, WHERE APPLICABLE:

112.310 NAME AND ADDRESS OF EACH OFFICER, PARTNER, PRINCIPAL, PRINCIPAL SHAREHOLDER, AND DIRECTOR OR OTHER PERSON PERFORMING A FUNCTION SIMILAR TO A DIRECTOR; AND

Officer authorized to act on behalf of United States Fuel Company:

Name: Gary L. Barker, Vice President and General Manager  
Address: United States Fuel Company  
P.O. Box A, Hiawatha, UT 84527

Officers authorized to act on behalf of Sharon Steel Corporation:

E.L. Kern, Executive Vice President & Chief Operating Officer  
Malvin G. Sander, Senior Vice President, General Council & Secretary  
Charles Boryenace, Senior Vice President, Chief Financial Officer & Treasurer  
James M. Newcomb, Senior Vice President Natural Resources  
Philip A. Smalley, Senior Vice President Administration  
William H. Beachler, Vice President Operations  
Charles R. Cornelius, Assistant Secretary & Associate General Council  
Thomas J. Weigle, Assistant Treasurer  
Lori A. Darby, Assistant Secretary

Corporate Office Address: Sharon Steel Corporation  
P.O. Box 270, Farrell, PA 16121

United States Fuel Company is a wholly owned subsidiary of Sharon Steel Corporation.

Address: Sharon Steel Corporation  
P.O. Box 270, Farrell, PA 16121

112.320 ALL NAMES UNDER WHICH THE APPLICANT, PARTNER, OR PRINCIPAL SHAREHOLDER OPERATES OR PREVIOUSLY OPERATED A COAL MINE AND RECLAMATION OPERATION IN THE UNITED STATES WITHIN THE 5 YEARS PRECEDING THE DATE OF APPLICATION;

United States Fuel Company and Carpentertown Coal and Coke Company.

112.400 A STATEMENT OF ANY PENDING COAL MINING AND RECLAMATION OPERATION PERMIT APPLICATIONS IN THE UNITED STATES, AND OF ALL CURRENT AND PREVIOUS COAL MINING AND RECLAMATION OPERATION PERMITS IN THE UNITED STATES HELD DURING THE FIVE YEARS PRECEDING THE DATE OF THE APPLICATION BY ANY PERSON IDENTIFIED IN R614-301-112.320. SUCH STATEMENT WILL PROVIDE PERMIT OR APPLICATION NUMBERS OF OTHER IDENTIFIERS AND THE IDENTITY OF THE REGULATORY AUTHORITY FOR EACH OPERATION LISTED;

U.S Fuel Company and Carpentertown Coal and Coke both held coal mining permits subsequent to 1970. Listed on Table I-2 are permits presently or previously held by Carpentertown Coal and Coke. U.S. Fuel Company's mining permits have been listed in Table I-3.

112.500 THE NAME AND ADDRESS OF EACH LEGAL OR EQUITABLE OWNER OF RECORD OF THE SURFACE AND MINERAL PROPERTY TO BE MINED, EACH HOLDER OF RECORD OF ANY LEASEHOLD INTEREST IN THE PROPERTY TO BE MINED, AND ANY PURCHASER OF RECORD UNDER A REAL ESTATE CONTRACT FOR THE PROPERTY TO BE MINED;

Surface and subsurface ownership can be referenced on Exhibits IV-1 and IV-2. Table I-1 lists the ownership of both surface and coal rights in the permit area. The area is broken into five categories based on its ownership and lease status. Refer to the legend and summary on page 10.

112.600 THE NAME AND ADDRESS OF EACH OWNER OF RECORD OF ALL PROPERTY (SURFACE AND SUBSURFACE) CONTIGUOUS TO ANY PART OF THE PROPOSED PERMIT AREA;

Refer to Exhibits IV-1 and IV-2 for names and addresses of the owners of record.

TABLE I-1

UNITED STATES FUEL COMPANY  
PROPERTY OWNERSHIP

Land Subdivision	1	Area (Acres)			5	Legal Document	Date of Document	Recorded Book Page	Remarks
		2	3	4					
								<u>Carbon County</u>	
<u>T.15S., R.7E., SLBM</u>									
Section 13: S1/2					320	Lease U-058261	2/1/61	B.L.M.	All U.S.A.
Section 24: N1/2, SW1/4, N1/2 SE1/4, SW1/4 SE1/4 SE1/4 SE1/4					480	Lease U-058261	2/1/61	B.L.M.	
			40		120	Lease U-058261 Conveyance	2/1/61 1/3/16	B.L.M. 30-257	Surface-U.S.A.
Section 25: E1/2 E1/2 W1/2 E1/2 E1/2 NW1/4			160			Conveyance	1/3/16	30-257	Surface-U.S.A.
					160	Lease SL-069985	11/1/69	B.L.M.	All U.S.A.
					80	Lease U-026583	2/1/61	B.L.M.	All U.S.A.
Section 36: N1/2 NE1/4, W1/2 SE1/4					160	Lease SL-069985	11/1/69	B.L.M.	All U.S.A.
					160	Lease SL-025431	2/8/63	B.L.M.	All U.S.A.

TABLE I-1

UNITED STATES FUEL COMPANY  
PROPERTY OWNERSHIP

Land Subdivision	1	Area 2	(Acres) 3	4	5	Legal Document	Date of Document	Recorded Book Page	Remarks
<u>T.15S., R.8E., SLBM</u>								<u>Carbon County</u>	
Section 17: S1/2 NE1/4, SE1/4			240			Patent 1013339	3/8/28	6A-125	Subsurface-U.S.A.
E1/2 SW1/4			80			Patent 1013339	3/8/28	6A-125	Subsurface-U.S.A.
S1/2 NW1/4, NW1/4 SW1/4	10		110			*Conveyance	1/3/16	3D-257	Coal-Plateau
SW1/4 SW1/4	40					Conveyance	1/3/16	3D-257	Mining
N1/2 NW1/4 (part)			7.5			Conveyance	1/3/16	3D-257	
Section 18: SE1/4 SE1/4	40					Conveyance	1/3/16	3D-257	
SW1/4 SE1/4	40					"	"	"	
NE1/4 SE1/4 (part)	1.51					"	"	"	
NW1/4 SE1/4 (part)	1.51					"	"	"	
SE1/4 SW1/4	40					"	"	"	
NE1/4 SW1/4 (part)	3.49					"	"	"	
SW1/4 SW1/4	37.78					"	"	"	
NW1/4 SW1/4 (part)	9.10					"	"	"	
NW1/4			155.56			"	"	"	Coal Leased to
NE1/4			160			"	"	"	Plateau
N1/2 SE1/4			76.97			"	"	"	Mining
N1/2 SW1/4			65.19			"	"	"	"

\*This 120 acres was acquired by U.S. Fuel in 1916. The coal rights were subsequently sold to Plateau Mining in 1944, other than that portion of the NW1/4 of the SW1/4 lying south of Miller Creek (approximately 10 acres).

TABLE I-1

 UNITED STATES FUEL COMPANY  
 PROPERTY OWNERSHIP

Land Subdivision	1	Area (Acres)		5	Legal Document	Date of Document	Recorded Book Page	Remarks
		2	3 4					
							<u>Carbon County</u>	
<u>T.15S., R.8E., SLBM</u>								
Section 19: All	631				Conveyance	1/3/16	30-257	
Section 20: E1/2			320		Patent 1013339	3/8/28	6A-125	Subsurface-U.S.A.
N1/2 SW1/4			80		Patent 1013339	3/8/28	6A-125	Subsurface-U.S.A.
S1/2 SW1/4	80				Conveyance	1/3/16	30-257	
NW1/4				160	Lease U-51923	10/1/85		Subsurface-U.S.A.
Section 21: All			640		Patent 1013339	3/8/28	6A-125	Subsurface-U.S.A.
Section 26: W1/2 SW1/4	80				Warranty Deed	6/21/76	161-112	
Section 27: N1/2 SE1/4,								
N1/2 SW1/4	160				Conveyance	1/3/16	30-257	
SW1/4 NW1/4,								
SW1/4 SW1/4	80				Conveyance	1/3/16	30-257	
S1/2 SE1/4,								
SE1/4 SW1/4	120				Conveyance	1/3/16	30-260	
Section 28: All			640		Patent 1013339	3/8/28	6A-125	Subsurface-U.S.A.

TABLE I-1

UNITED STATES FUEL COMPANY  
PROPERTY OWNERSHIP

Land Subdivision	1	Area (Acres)			5	Legal Document	Date of Document	Recorded Book Page	Remarks
		2	3	4					
								<u>Carbon County</u>	
<u>T.15S., R.8E., SLBM</u>									
Section 29: NE1/4 NE1/4			40		Patent 1013339	3/8/28	6A-125	Subsurface-U.S.A.	
S1/2 NE1/4									
NW1/4 NE1/4	120				Conveyance	1/3/16	3D-257		
NW1/4, S1/2	480				Conveyance	1/3/16	3D-257		
Section 30: All	631				Conveyance	1/3/16	3D-257		
Section 31: N1/2			316		Conveyance	1/3/16	3D-257	Coal-U.S.A.	
S1/2			316		Patent 1013339	3/8/28	6A-125	Subsurface-U.S.A.	
Section 32: SE1/4 NE1/4	40				Patent 12257	4/22/20	2A-251		
N1/2 NE1/4,									
SW1/4 NE1/4	120				Quit Claim Deed	5/6/23	3H-427		
NW1/4, S1/2	480				Quit Claim Deed	5/6/23	3H-427		
Section 33: N1/2			320		Patent 1013339	3/8/28	6A-125		
S1/2	320				Conveyance	1/3/16	3D-260		

TABLE I-1

UNITED STATES FUEL COMPANY  
PROPERTY OWNERSHIP

Land Subdivision	1	Area (Acres)			5	Legal Document	Date of Document	Recorded Book Page	Remarks
		2	3	4					
								<u>Carbon County</u>	
<u>T.15S., R.8E., SLBM</u>									
Section 34: N1/2 NE1/4, N1/2 NW1/4	160					Conveyance	1/3/16	30-260	
NE1/4 SW1/4, SW1/4 NW1/4	80					Warranty Deed	12/1/17	5F-309	
SW1/4 NE1/4, NW1/4 SE1/4	80					Patent 12499	10/14/20	2A-252	
SE1/4 NW1/4	40					Patent 12499	10/14/20	2A-252	
SE1/4 NE1/4	40					Patent 11722	10/20/19	2A-226	
S1/2 SW1/4		80				Patent 10835	7/17/18	2A-226	Coal-U.S.A.
NE1/4 SE1/4	40					Warranty Deed	6/21/76	161-112	
NW1/4 SW1/4		40				Patent 1114115	6/4/42	6A-267	Subsurface-U.S.A.
Section 35: E1/2 NW1/4, NW1/4 SW1/4	120					Warranty Deed	6/21/76	161-112	
NW1/4 NW1/4	40					Patent 11723	10/20/19	2A-226	
SW1/4 NW1/4	40					Conveyance	1/3/16	30-260	

TABLE I-1

UNITED STATES FUEL COMPANY  
PROPERTY OWNERSHIP

Land Subdivision	1	Area (Acres)			5	Legal Document	Date of Document	Recorded Book Page	Remarks
		2	3	4					
								<u>Emery County</u>	
<u>T.16S., R.8E., SLBM</u>									
Section 3: W1/2	361				Conveyance	1/3/16	A5-318		
Section 4: Lots 1,2,3, 4,5,6,7	202				Conveyance	1/3/16	A5-318		
Lots 8,9, 10,11,12	200				Conveyance	1/3/16	A5-318		
SW1/4	160				Conveyance	1/3/16	A5-315		
SE1/4	160				Warranty Deed	5/31/19	B9-205		
								<u>Emery County</u>	
Section 5: Lots 1,5,8,12 Lots 2,3,4,6, 7,9,10,11 S1/2			140		Patent 11804	11/26/19	A2-50		Coal-U.S.A.
		261			Patent 11804	11/26/19	A2-50		Coal-U.S.A.
		320			Patent 11803	11/26/19	A2-51		Coal-U.S.A.
Section 6: Lots 1,2,3,4, 5,6,7,8,9 NE1/4 SE1/4 Lot 10			291		Patent 11804	11/26/19	A2-50		Coal-U.S.A.
		40			Patent 11803	11/26/19	A2-50		Coal-U.S.A.
			40		Patent 11804	11/26/19	A2-50		Coal-U.S.A.

TABLE I-1

UNITED STATES FUEL COMPANY  
PROPERTY OWNERSHIP

Land Subdivision	1	Area (Acres)				5	Legal Document	Date of Document	Recorded Book Page	Remarks
		2	3	4						
									<u>Emery County</u>	
<u>T.16S., R.8E., SLBM</u>										
Section 8: E1/2, E1/2	160					Conveyance	1/3/16	A5-315		
Section 9: W1/2,										
W1/2 NE1/4	400					Conveyance	1/3/16	A5-315		
W1/2 SE1/4,										
SE1/4 SE1/4	120					Conveyance	1/3/16	A5-315		
E1/2 NE1/4,										
NE1/4 SE1/4			120			Patent 1013339	3/8/28	A2-317		

TABLE I-1

UNITED STATES FUEL COMPANY  
PROPERTY OWNERSHIP

Land Subdivision	1	Area (Acres)			5	Legal Document	Date of Document	Recorded Book Page	Remarks
		2	3	4					

DESIGNATION OF TITLE

ACREAGE

1). Surface-Fee Title, Coal Rights-Fee Title.....	5,968
2). Surface Rights-None, Coal Rights-Fee Title.....	200
3). Surface Rights-Fee Title, Coal Rights-None.....	3,796
4). Surface-Fee Title, Coal Rights-Leased.....	1,263
5). Surface Rights-None, Coal Rights-Leased.....	1,480
Total.....	<u>12,707</u>

Revised 5/13/88

## TABLE I-2

## CARPENTERTOWN COAL AND COKE COAL MINING PERMITS

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Active Underground Permits		
<u>Permit Number</u>	<u>Type of permit</u>	<u>Issuing agency</u>
Federal Identification Number 36-04595	Deep Mine	Mine Safety and Health Administration
0383304	Mining Activity Permit	Pennsylvania Dept. of Environmental Resources

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Active Surface Permits		
<u>Permit Number</u>	<u>Type of permit</u>	<u>Issuing agency</u>
03813702	Refuse Disposal Permit (A)	Pennsylvania D.E.R.
03820702	Refuse Disposal Permit (Little Germany)	Pennsylvania D.E.R.
36-04025	Prep. Plant & Surface Mine I.D. Number	Mine Safety and Health Administration
03840201	Coal Refuse Reprocessing Permit	Pennsylvania D.E.R.
03850109	Surface Mining Permit	Pennsylvania D.E.R.
03823082	Surface Mining Permit	Pennsylvania D.E.R.

TABLE I-2 continued

## Surface Permits\*

<u>Permit Number</u>	<u>Type of Permit</u>	<u>Issuing Agency</u>
3576BSM20	Mine drainage	Pennsylvania D.E.R.
3570BSM26	Mine drainage	Pennsylvania D.E.R.
3572BSM16	Mine drainage	Pennsylvania D.E.R.
18410	Surface mining	Pennsylvania D.E.R.
18411	Surface mining	Pennsylvania D.E.R.
18412	Surface mining	Pennsylvania D.E.R.
18413	Surface mining	Pennsylvania D.E.R.
18414	Surface mining	Pennsylvania D.E.R.
18415	Surface mining	Pennsylvania D.E.R.

\* Permits have been deactivated and the bonds released by the Pennsylvania D.E.R.

TABLE I-3

## IDENTIFICATION OF OTHER LICENCES AND PERMITS

Permit	Permitting Agency	Statute
1. NPDES Permit No. UT-0023094	U.S. Environmental Protec- tion Agency Region VIII 1860 Lincoln Street Denver, Colorado 80295	Permit Granted 10/17/80
2. Water Supply Facility No Identification Number	Utah Division of Environmental Health 150 West North Temple Salt Lake City, Utah 84110	Facilities Approved 03/17/80
3. Sedimentation Ponds No Identification Number	Utah Division of Water Rights 1636 West North Temple Salt Lake City, Utah 84116	Ponds Approved 10/16/79
4. Refuse Piles and Slurry Impoundments No Identification Number	U.S. Army Corps Engineers 125 South State Salt Lake City, Utah 84111	Permit Granted Under Section 404 WPCA of 1972
5. USGS Conservation Division of Mining Plan No Identification Number	U.S. Geological Survey 8426 Federal Building 125 South State Salt Lake City, Utah 84111	Approved 11/22/78
6. King IV Roof Control Plan Identification Number 42-00098	Coal Mine Safety and Health Box 25367 Denver, Colorado 80225	Approved 04/25/79
King IV Ventilation Plan Identification Number 42-00098	Coal Mine Safety and Health Box 25367 Denver, Colorado 80225	Approved 03/20/80
King V Roof Control Plan Identification Number 42-01389	Coal Mine Safety and Health Box 25367 Denver, Colorado 80225	Approved 05/05/80
King V Ventilation Plan Identification Number 42-01389	Coal Mine Safety and Health Box 25367 Denver, Colorado 80225	Approved 09/06/79

TABLE I-3 continued

Permit	Permitting Agency	Statute
Refuse Piles and Slurry Impoundment Stability Identification No. 1211-UT-09-00098-01 1211-UT-09-00098-02 1211-UT-09-00098-03 1211-UT-09-00098-05 1211-UT-09-00098-07	Coal Mine Safety and Health Box 25367 Denver, Colorado 80225	Approved 1976     2/17/87
King VI Compliance Permits	Coal Mine Safety and Health Box 25367 Denver, Colorado 80225	Approved 01/83

112.700 THE MSHA NUMBERS FOR ALL MINE-ASSOCIATED STRUCTURES THAT REQUIRE MSHA APPROVAL; AND

Existing Mines:	King 4	King 5	King 6
MSHA I.D. No. :	42-00098	42-01389	42-01599
Section No.s :	003 016		

112.800 A STATEMENT OF ALL LANDS, INTEREST IN LANDS, OPTIONS, OR PENDING BIDS ON INTERESTS HELD OR MADE BY THE APPLICANT FOR LANDS CONTIGUOUS TO THE AREA DESCRIBED IN THE PERMIT APPLICATION. IF REQUESTED BY THE APPLICANT, ANY INFORMATION REQUIRED BY R614-301-112.800 WHICH IS NOT ON PUBLIC FILE PURSUANT TO UTAH LAW WILL BE HELD IN CONFIDENCE BY THE DIVISION AS PROVIDED UNDER R614-300-124.320.

No present interests or bids to be included in this permit application.

R614-301-113 VIOLATION INFORMATION. AN APPLICATION WILL CONTAIN THE FOLLOWING:

113.100 A STATEMENT OF WHETHER THE APPLICANT OR ANY SUBSIDIARY, AFFILIATE, OR PERSONS CONTROLLED BY OR UNDER COMMON CONTROL WITH THE APPLICANT HAS:

113.110 HAD A FEDERAL OR STATE PERMIT TO CONDUCT COAL MINING AND RECLAMATION OPERATIONS SUSPENDED OR REVOKED IN THE FIVE YEARS PRECEDING THE DATE OF SUBMISSION OF THE APPLICATION; OR

No

113.120 FORFEITED A PERFORMANCE BOND OR SIMILAR SECURITY DEPOSITED IN LIEU OF BOND;

No

113.200 Not Applicable

113-300 A LIST OF ALL VIOLATION NOTICES RECEIVED BY THE APPLICANT OR ANY SUBSIDIARY, AFFILIATE, OR PERSONS CONTROLLED BY OR UNDER COMMON CONTROL WITH THE APPLICANT IN CONNECTION WITH ANY COAL MINING AND RECLAMATION OPERATION DURING THE THREE-YEAR PERIOD PRECEDING THE APPLICATION DATE, FOR VIOLATIONS OF ANY PROVISION OF THE FEDERAL ACT, THE ACT; OR OF ANY LAW, RULE, OR REGULATION PERTAINING TO AIR OR WATER ENVIRONMENTAL PROTECTION. THE APPLICATION WILL ALSO CONTAIN THE FOLLOWING INFORMATION ABOUT EACH VIOLATION NOTICE:

(Use Nov. 1991 as the renewal date. List violations three years prior to the renewal date. List will be updated in October 1991.)

- 113-310 THE DATE OF ISSUANCE AND IDENTITY OF THE ISSUING REGULATORY AUTHORITY, DEPARTMENT OR AGENCY;
- 113-320 A BRIEF DESCRIPTION OF THE VIOLATION ALLEGED IN THE NOTICE;
- 113-330 THE DATE, LOCATION, AND TYPE OF ANY ADMINISTRATIVE OR JUDICIAL PROCEEDINGS INITIATED CONCERNING THE VIOLATION, INCLUDING, BUT NOT LIMITED TO, PROCEEDINGS, INITIATED BY ANY PERSON IDENTIFIED IN R614-301-113.300 TO OBTAIN ADMINISTRATIVE OR JUDICIAL REVIEW OF THE VIOLATION;
- 113.340 THE CURRENT STATUS OF THE PROCEEDINGS AND OF THE VIOLATION NOTICE; AND
- 113.350 THE ACTIONS, IF ANY, TAKEN BY ANY PERSON IDENTIFIED IN R614-301-113.300 TO ABATE THE VIOLATION.

NOTICES OF VIOLATION  
NOVEMBER 1988 - NOVEMBER 1991

- N88-28-1-1 - Issued 3-25-88 by DOGM for failure to pass all disturbed area runoff through a treatment facility. No proceedings were initiated. The violation was terminated by clean up of material and reestablishment of the berm.
- N88-28-2-1 Issued 5-11-88 by DOGM for failure to maintain diversions. No proceedings were initiated. The violation was terminated after the diversions were cleaned and repaired.
- N88-28-5-1 Issued 8-18-88 by DOGM for failure to comply with water monitoring program. No proceedings were initiated. The violation was abated.
- N88-28-8-1 Issued 11-9-88 by DOGM for failure to place and store noncoal waste in a controlled manner. No proceedings were initiated. The violation was terminated after the area was cleaned up.
- N89-28-2-1 Issued by DOGM on 2-22-89 for failure to minimize suspended solid contributions to stream flow. No proceedings were initiated. The violation was terminated when pipeline was repaired.
- N89-28-3-1 Issued by DOGM on 2-23-89 for failure to obtain a permit to operate coal processing equipment. No proceedings were initiated. Violation was terminated when permit was obtained.
- N89-28-7-1 Issued by DOGM on 8-9-89 for failure to place underground development waste in a controlled manner. No proceedings were initiated. Violation was terminated when waste was removed.
- N89-28-8-1 Issued by DOGM on 9-15-89 for :  
1) failure to maintain diversion ditches and  
2) failure to maintain a support facility.  
No proceedings were initiated.  
The violations were terminated when:  
1) the ditches were maintained and  
2) the pipeline was repaired.

## R614-301-114 RIGHT-OF-ENTRY INFORMATION

- 114.100 AN APPLICATION WILL CONTAIN A DESCRIPTION OF THE DOCUMENTS UPON WHICH THE APPLICANT BASES THEIR LEGAL RIGHT TO ENTER AND BEGIN COAL MINING AND RECLAMATION OPERATIONS IN THE PERMIT AREA AND WILL STATE WHETHER THAT RIGHT IS THE SUBJECT OF PENDING LITIGATION. THE DESCRIPTION WILL IDENTIFY THE DOCUMENTS BY TYPE AND DATE OF EXECUTION, IDENTIFY THE SPECIFIC LANDS TO WHICH THE DOCUMENT PERTAINS, AND EXPLAIN THE LEGAL RIGHTS CLAIMED BY THE APPLICANT.

Coal in the permit area is either owned by U.S. Fuel or leased from the government. Refer to Table I-1 to identify land ownership and leases and to explain the legal rights by which it is claimed.

- 114.200 WHERE THE PRIVATE MINERAL ESTATE TO BE MINED HAS BEEN SEVERED FROM THE PRIVATE SURFACE ESTATE, AN APPLICANT WILL ALSO SUBMIT:

Not applicable.

## R614-301-115 STATUS OF UNSUITABILITY CLAIMS

- 115.100 AN APPLICATION WILL CONTAIN AVAILABLE INFORMATION AS TO WHETHER THE PROPOSED PERMIT AREA IS WITHIN AN AREA DESIGNATED AS UNSUITABLE FOR COAL MINING AND RECLAMATION OPERATIONS OR IS WITHIN AN AREA UNDER STUDY FOR DESIGNATION IN AN ADMINISTRATIVE PROCEEDING UNDER 6614-103-300, R614-103-400, OR 30 CFR PART 769.

During the permit application process Mr. D. Wayne Hedberg of DOGM (personal communication, 13 October 1983) was contacted regarding this matter. According to him, there were no administrative proceedings occurring at that time to designate as unsuitable for mining any property within the proposed permit area. Refer to Attachment 1.

11/27/89



SCOTT M. MATHESON  
Governor

OIL, GAS, AND MINING BOARD

GORDON E. HARMSTON  
Executive Director  
NATURAL RESOURCES

## STATE OF UTAH

CHARLES R. HENDERSON  
Chairman

CLEON J. FEIGHT  
Director

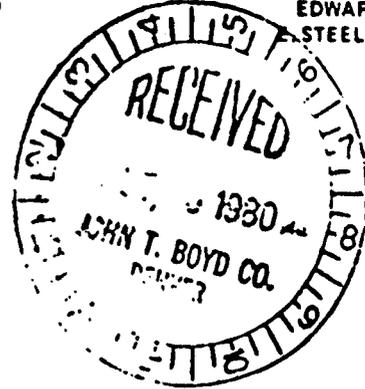
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF OIL, GAS, AND MINING

1588 West North Temple  
Salt Lake City, Utah 84116  
(801) 533-5771

JOHN L. BELL  
C. RAY JUVELIN  
THADIS W. BOX  
CONSTANCE K. LUNDBERG  
EDWARD T. BECK  
STEEL MCINTYRE

October 2, 1980



Mr. Michael Meenan  
Environmental Engineer  
John T. Boyd Company  
1860 Lincoln Street  
Suite 1028  
Denver, Colorado 80295

RE: U. S. Fuel Company  
Hiawatha Complex  
ACT/007/011  
Carbon County, Utah

Dear Mr. Meenan:

In response to your letter dated September 23, 1980, regarding areas designated unsuitable for mining; to date, this office has received no determination, application or petition of unsuitability for mining at or near U. S. Fuel Company's Hiawatha Complex in Carbon County, Utah.

Should such a condition arise in the future, U. S. Fuel Company shall promptly be notified.

Sincerely,

JAMES W. SMITH, JR.  
COORDINATOR OF MINED  
LAND DEVELOPMENT

cc: Bob Eccli, U. S. Fuel Company

JWS/btm

11/27/89

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

Manti-LaSal National Forest - Price Ranger District  
10 North Carbon Avenue #2  
Price, Utah 84501



John T. Boyd Company  
1860 Lincoln Street  
Suite 1028  
Denver, Colorado 80295  
ATTENTION: Michael K. Meenan

Dear Mr. Meenan:

We are in receipt of your letter of 8/27/80 requesting information on U.S. Fuel Company's property in Carbon and Emery Counties, Utah. As we understand it, your request entails any available information regarding unsuitability criteria or "restrictions" that might apply to the subject property as indicated by your accompanying map.

After researching available data at our disposal, the only unsuitability criterion that might apply would be #17 covering municipal watersheds. The leased land (lease nos. SL 069985, SL 025431 and U 026583) under Forest Service jurisdiction falls into the Price River and Huntington Canyon drainages. Both drainages serve municipal water supplies. Since these watersheds cover such a large area of coal bearing lands owned by Federal, State and private interests, a determination has yet to be made relative to the applicability of criterion #17.

Regarding further "restrictions" not covered under the unsuitability criteria these would be handled on a more specific basis through the environmental assessment process.

One additional item that we might mention is the fact that the U.S. Fuel property boundary, as shown on your map, includes unleased Federal coal lands under Forest Service administration. Specifically, these lands include Section 19, N $\frac{1}{2}$ N $\frac{1}{2}$ , Section 20; N $\frac{1}{2}$ N $\frac{1}{2}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$ ; Section 21, W $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , T. 16 S., R. 8 E., SLM.

We hope that the above adequately complies with your request. If you have any further questions, please don't hesitate to contact us.

  
IRA W. HATCH  
District Ranger

115.200 AN APPLICATION IN WHICH THE APPLICANT CLAIMS THE EXEMPTION DESCRIBED IN R614-103-333 WILL CONTAIN INFORMATION SUPPORTING THE ASSERTION THAT THE APPLICANT MADE SUBSTANTIAL LEGAL AND FINANCIAL COMMITMENTS BEFORE JANUARY 4, 1977, CONCERNING THE PROPOSED COAL MINING AND RECLAMATION OPERATIONS.

No exemption claimed.

115.200 AN APPLICATION IN WHICH THE APPLICANT PROPOSES TO CONDUCT COAL MINING AND RECLAMATION OPERATIONS WITHIN 300 FEET OF AN OCCUPIED DWELLING OR WITHIN 100 FEET OF A PUBLIC ROAD WILL CONTAIN THE NECESSARY INFORMATION AND MEET THE REQUIREMENTS OF R614-103-230 THROUGH R614-103-238.

All occupied dwellings within 300 feet of any proposed mining operations are owned by U.S. Fuel Company therefore no waiver is required. All land in the permit area on which surface operations are located are owned by U.S. Fuel. Surface operations have existed within 100 feet of a public road for at least fifty years prior to this application. The interests of the public and the landowner should not be adversely affected.

#### R614-301-116 PERMIT TERM

116.100 EACH PERMIT APPLICATION WILL STATE THE ANTICIPATED OR ACUTAL STARTING AND TERMINATION DATE OF EACH PHASE OF THE COAL MINING AND RECLAMATION OPERATION AND THE ANTICIPATED NUMBER OF ACRES OF LAND TO BE AFFECTED DURING EACH PHASE OF MINING OVER THE LIFE OF THE MINE.

Refer to Table I-6.

116.200 IF THE APPLICANT REQUIRES AN INITIAL PERMIT TERM IN EXCESS OF FIVE YEARS IN ORDER TO OBTAIN NECESSARY FINANCING FOR EQUIPMENT AND THE OPENING OF THE OPERATION, THE APPLICATION WILL:

U.S. Fuel Company is applying for a five year permit term although the application is full and complete for varying longer terms. Amendments to the permit are expected to be made during the course of the permit term.

TABLE I-6  
 PERMIT TERM INFORMATION  
 MINING METHODS AND ESTIMATED PRODUCTIVITY

<u>Mine</u>	<u>Seam</u>	<u>Mining Methods</u>	<u>Production Date</u>	<u>Termination Date</u>	<u>Estimated Productivity</u>
King 4	B	Continuous Miner Room and Pillar	Operating	2004	700,000 Tons/Year
King 4	A	Continuous Miner Room and Pillar	Idle	2014	200,000 Tons/Year
King 5	B	Continuous Miner Room and Pillar	Idle	2000	250,000 Tons/Year
King 6	H*	Continuous Miner Room and Pillar	1981	2005	384,000 Tons/Year

\* Hiawatha seam

## TABLE I-6 continued

In reference to the U-51923 lease area specifically the required information is supplied:

Anticipated starting date: (date production will reach lease boundary)	March 15, 1987 for B seam mining Jan. 1991 for A seam mining
Anticipated number of acres of surface land to be affected:	0 to 10 acres
Horizontal and vertical extent of proposed underground mine workings:	Approximately 61 acres will be mined in the B seam. The coal will vary in vertical height between 5 to 6 feet  Approximately 68 acres will be mined in the A seam. The coal will vary in vertical height from 5 to 11 feet.
Anticipated termination date: (Date by which all mineable coal will have been removed from both seams.)	December 2014

R614-301-117 INSURANCE, PROOF OF PUBLICATION AND FACILITIES OR STRUCTURES USED IN COMMON.

117.100 A PERMIT APPLICATION WILL CONTAIN EITHER A CERTIFICATE OF LIABILITY INSURANCE OR EVIDENCE OF SELF-INSURANCE IN COMPLIANCE WITH R614-301-800.

The company's current Certificate of Liability Insurance as filed with the Utah DOGM is included as Attachment 2.

117.200 A COPY OF THE NEWSPAPER ADVERTISEMENTS OF THE APPLICATION FOR A PERMIT, SIGNIFICANT REVISION OF A PERMIT, OR RENEWAL OF A PERMIT, OR PROOF OF PUBLICATION OF THE ADVERTISEMENTS WHICH IS ACCEPTABLE TO THE DIVISION WILL BE FILED WITH THE DIVISION AND WILL BE MADE A PART OF THE APPLICATION NOT LATER THAN 4 WEEKS AFTER THE LAST DATE OF PUBLICATION AS REQUIRED BY R614-300-121.100.

The newspaper advertisement and proof of publication are included as Attachments 3 & 4.

117.300 THE PLANS OF A FACILITY OR STRUCTURE THAT IS TO BE SHARED BY TWO OR MORE SEPARATELY PERMITTED COAL MINING AND RECLAMATION OPERATIONS MAY BE INCLUDED IN ONE PERMIT APPLICATION AND REFERENCED IN THE OTHER APPLICATIONS. IN ACCORDANCE WITH R614-301-800, EACH PERMITTEE WILL BOND THE FACILITY OR STRUCTURE UNLESS THE PERMITTEES SHARING IT AGREE TO ANOTHER ARRANGEMENT FOR ASSUMING THEIR RESPECTIVE RESPONSIBILITIES. IF SUCH AGREEMENT IS REACHED, THEN THE APPLICATION WILL INCLUDE A COPY OF THE AGREEMENT BETWEEN OR AMONG THE PARTIES SETTING FORTH THE RESPECTIVE BONDING RESPONSIBILITIES OF EACH PARTY FOR THE FACILITY OR STRUCTURE. THE AGREEMENT WILL DEMONSTRATE TO THE SATISFACTION OF THE DIVISION THAT ALL RESPONSIBILITIES UNDER THE R614 RULES FOR THE FACILITY OR STRUCTURE WILL BE MET.

No facilities will be permanently share with another permitted operation.

R614-301-118 FILING FEE. EACH PERMIT APPLICATION TO CONDUCT COAL MINING AND RECLAMATION OPERATIONS PURSUANT TO THE STATE PROGRAM WILL BE ACCOMPANIED BY A FEE OF \$5.00.

The \$5.00 permit application fee was paid on March 21, 1981.



JOHNSON & HIGGINS OF PA., INC.  
P. O. BOX 70587  
CHICAGO, IL 60673-0587  
(412) 391-5350

Invoice

UNITED STATES FUEL COMPANY  
C/O SHARON STEEL CORPORATION  
ATT THOMAS WEIGLE  
ROEMER BLVD.  
FARRELL, PA 16121

CLIENT NO. 8460-00030  
INVOICE NO. 161157-013  
DATE 10/05/89  
AMOUNT 231,380.00

NATURAL RESOURCES DIVISION  
C/O SHARON STEEL CORP.

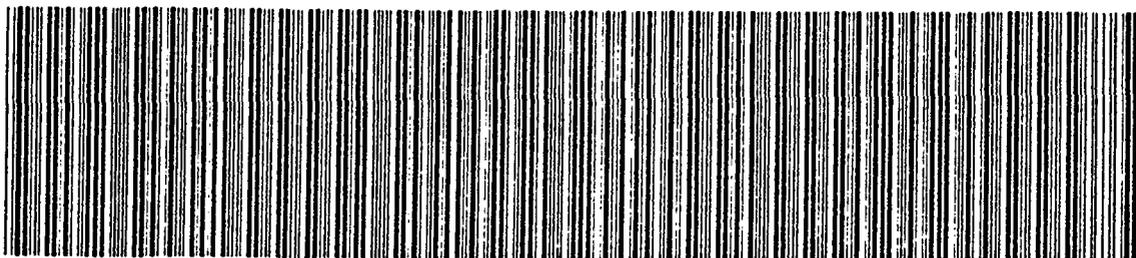
INSURANCE DESCRIPTION			DEPARTMENT	J&H CONTACT	PAYABLE UPON RECEIPT	
GENERAL LIABILITY			CAS.	HOYT P	ATTACHMENT DATE, OR INSTALLMENT DATE, WHICHEVER IS LATEST	
INSURANCE COMPANY	DATES		POLICY NUMBER	DESCRIPTION	AMOUNT	
	ATTACH	EXPIRES				
PLANET INS	100189	100190	NGA149563600		231,380.00	
					1/12 = 19282	
					<i>J. Harris</i> 11/2/89	
				TOTAL →	231,380.00	

JH - AA4L - INV

JOHNSON & HIGGINS

ORIGINAL - #1

\*013084600003016115789100500023138000+\*



11/27/89

# AFFIDAVIT OF PUBLICATION

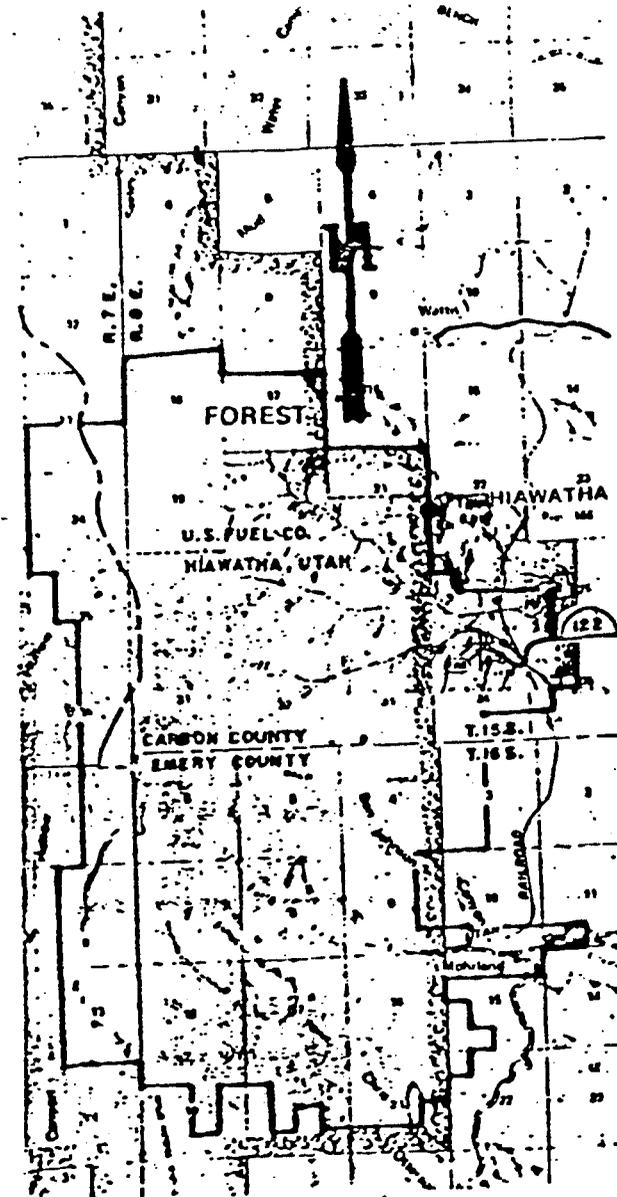
## PUBLIC NOTICE

United States Fuel Company, Hiawatha, Utah 84527, pursuant to Utah Mining Code promulgated under UCA 40-10-1 et. seq., is submitting the King Mines Mining and Reclamation Plan.

The project area is located on the U.S. Geological Survey Hiawatha 7.5 - minute quadrangle. The map below shows the general location and property boundaries. A detailed description of the fee and lease properties is included in the permit application.

A copy of the application is available for public inspection at the following address:

Recorder's Office  
Carbon County Courthouse  
Price, Utah 84501  
Recorder's Office  
Emery County Courthouse  
Castle Dale, Utah 84513  
Written comments, objections or requests for informal conference should be sent to the following addresses:  
Division of Oil, Gas and Mining  
1588 West North Temple  
Salt Lake City, Utah 84116  
Office of Surface Mining  
Brooks Towers, Suite 1020  
15th Street  
Denver, Colorado 80202  
Published in the Sun Advocate March 25 and April 1, 8 and 15, 1981.



STATE OF UTAH }  
County of Carbon, } ss.

I, Robert L. Finney, on oath, say that I am the Publisher of The Sun-Advocate, a weekly newspaper of general circulation, published at Price, State and County aforesaid, and that a certain notice, a true copy of which is hereto attached, was published in the full issue of such newspaper for Four (4)

consecutive issues, and that the first publication was on the 25th day of March, 19 81 and that the last publication of such notice was in the issue of such newspaper dated the 15th day of April, 19 81

*Robert L. Finney*

Subscribed and sworn to before me this 15th day of April, 19 81

*Shelley Finney*  
Notary Public.

My Commission expires My Commission Expires October 26, 1983

Publication fee, \$ 122.40

*W.C. P.O.N. 14645 ✓*  
*P.O.R.L.*  
*Bob Eick*

# AFFIDAVIT OF PUBLICATION

STATE OF UTAH }  
County of Carbon, } ss.

I, Dan Stockburger, on oath, say that I am  
the General Manager of The Sun-Advocate,  
a weekly newspaper of general circulation, published at Price,  
State and County aforesaid, and that a certain notice, a true copy  
of which is hereto attached, was published in the full issue of  
such newspaper for Four (4)  
consecutive issues, and that the first publication was on the  
22nd day of February, 19 84 and that the  
last publication of such notice was in the issue of such newspaper  
dated the 14th day of March, 19 84

*Dan Stockburger*

Subscribed and sworn to before me this  
14th day of March, 19 84

*Holly J. Baker*  
Notary Public.

My Commission expires My Commission Expires October 22, 1986, 19 86

Publication fee, \$ 156.00

## LEGAL NOTICE

United States Fuel Company, P.O. Box A, Hiawatha, Utah 84527, pursuant to Utah Mining Code 786, promulgated under UCA 40-10-1, has submitted an "apparently complete" Mining and Reclamation Plan for the King Mines. United States Fuel Company's permit application number is ACT 007/011.

The King Mines permit area is located approximately 25 miles south-west of Price, Utah via U.S. Hwy. 10 and State Hwy. 122.

The following described lands are contained on the U.S. Geological Survey 7.5 minute Hiawatha quadrangle map.

### TOWNSHIP 15 S., RANGE 7 E.

- Sec. 13 S $\frac{1}{2}$
- Sec. 24 all
- Sec. 25 E $\frac{1}{4}$ , E $\frac{1}{4}$ NW $\frac{1}{4}$
- Sec. 36 E $\frac{1}{4}$

### TOWNSHIP 15 S., RANGE 8 E.

- Sec. 17 SW $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$  portion
- All of sections: 18, 19, 20 & 21
- Sec. 26 W $\frac{1}{2}$ SW $\frac{1}{4}$
- Sec. 27 SE $\frac{1}{4}$ , SW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$
- All of sections: 28, 29, 30, 31, 32 & 33
- Sec. 34 NE $\frac{1}{4}$ , NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$
- Sec. 35 NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$

### TOWNSHIP 16 S., RANGE 7 E.

- Sec. 1 E $\frac{1}{2}$
- Sec. 12 NE $\frac{1}{4}$ , SE $\frac{1}{4}$ , E $\frac{1}{2}$ W $\frac{1}{2}$
- Sec. 13 E $\frac{1}{2}$ , E $\frac{1}{2}$ W $\frac{1}{2}$

### TOWNSHIP 16 S., RANGE 8 E.

- Sec. 3 W $\frac{1}{2}$
- All of sections: 4, 5, 6, 7, 8 & 9
- Sec. 10 S $\frac{1}{2}$ S $\frac{1}{2}$
- Sec. 11 S $\frac{1}{2}$ SW $\frac{1}{4}$
- Sec. 15 W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ , N $\frac{1}{2}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$
- All of sections: 16, 17 & 18
- Sec. 19 N $\frac{1}{2}$ N $\frac{1}{2}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$
- Sec. 20 NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SE $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$
- Sec. 21 NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$
- Sec. 22 NW $\frac{1}{4}$ NW $\frac{1}{4}$

A copy of the application is available for inspection at the following locations:

- Carbon County Courthouse, Price, Utah 84501
- Emery County Courthouse, Castle Dale, Utah 84513

Written comments, objections or requests for informal conferences may be submitted under Sec. UMC 786.12-786.14 to:

Utah Division of Oil, Gas and Mining  
4241 State Office Building  
Salt Lake City, Utah 84114

Office of Surface Mining  
Reclamation and Enforcement  
Brooks Towers  
1020 15th Street  
Denver, Colorado 80202

Published in the Sun Advocate February 22, 29, March 7 and 14, 1984.

## R614-301-120 PERMIT APPLICATION FORMAT AND CONTENTS

- 120
- 121.100 No response necessary.
- 121.200 No response necessary.
- 121.300 No response necessary.
- 122 No response necessary.
- 123 APPLICATIONS FOR PERMITS; PERMIT CHANGES; PERMIT RENEWALS; OR TRANSFERS, SALES OR ASSIGNMENTS OF PERMIT RIGHTS WILL CONTAIN THE NOTARIZED SIGNATURE OF A RESPONSIBLE OFFICIAL OF THE APPLICANT, THAT THE INFORMATION CONTAINED IN THE APPLICATION IS TRUE AND CORRECT TO THE BEST OF THE OFFICIAL'S INFORMATION AND BELIEF.

Refer to Attachment 5. (This attachment will be signed and resubmitted when all of the chapters have been revised)

## R614-301-130 REPORTING OF TECHNICAL DATA.

- 131 No response necessary.
- 132 No response necessary.

## R614-301-140 MAPS AND PLANS.

- 141 No response necessary.
- 142 No response necessary.
- 142.100 No response necessary.
- 142.200 No response necessary.
- 142.210 No response necessary.
- 142.220 No response necessary.
- 142.300 No response necessary.
- 142.400 No response necessary.

R614-301-150 No response necessary.

ATTACHMENT 5

VERIFICATION OF APPLICATION

United States Fuel Company  
Permit No. ACT/007/011

Gary L. Barker being first duly sworn, upon oath deposes and says that he is the Vice President and General Manager of United States Fuel Company and that he has reviewed and knows the contents of U.S. Fuel Company's Mining and Reclamation Plan submitted to the Utah Division of Oil, Gas and Mining.

I verify that the above mentioned plan is true and correct to the best of my information and belief.

\_\_\_\_\_  
Gary L. Barker  
Vice President and General Manager

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 1991.

\_\_\_\_\_  
Notary Public

File AQ/007/011-89F  
pending

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

RECEIVED  
SEP 11 1989

(801) 637-2252  
TELEX: 453-123

DIVISION OF  
OIL, GAS & MINING

September 8, 1989

Ms. Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, UT 84180-1203

RE: Permit Revision, NPDES Permit Parameter List

Dear Sue:

U.S. Fuel has recently received the renewal of their NPDES permit issued by the EPA in conjunction with the Utah State Health Department. Because the parameters in this permit differ somewhat from those listed for discharge analysis in our previous permit, we wish to revise the table which lists the EPA NPDES water monitoring requirements (Table VII-3) in our mining and reclamation permit. We would like to do this now in order to avoid any future conflicts over discrepancies between the two listings.

Enclosed are fourteen copies of revised text page VII-26 and Table VII-3.

Sincerely,  
*Jean Semborski*  
Jean Semborski  
Environmental Coordinator

pc: G. Barker



SEP 11 1989

UMC 817.52 Groundwater Monitoring

A groundwater inflow survey was conducted in the King IV mine in October 1983 to identify major sources of groundwater interception within the mine. Abandoned mines within the permit area are either permanently sealed or possess hazardous roof conditions and therefore, could not be surveyed.

Results of this survey are contained in Figure VII-1 as part of the response to UMC 783.15. U.S. Fuel Company will monitor each inflow point noted in the figure on a monthly basis where the inflow is greater than 1 gpm. Other inflows encountered in the future that exceed 1 gpm will also be monitored monthly. Data to be collected will include flow, specific conductance, temperature and pH. On a quarterly basis, samples will also be collected for analyses of other parameters listed in the DOGM guidelines for establishing groundwater monitoring programs. All data will be reported quarterly to DOGM.

As noted in Figure VII-1, a flow in excess of 50 gpm is currently intercepted in the King IV mine at the Bear Canyon fault. This area is now inaccessible due to hazardous conditions. If flows of similar magnitude are encountered during future mining operations, U.S. Fuel Company will notify DOGM as soon as possible.

Mine water discharged from the old Mohrland portal D001 (King No. 2) is covered by E.P.A. Permit No. UT-0023094. Monitoring requirements under this permit are listed in Table VII-3. Discharge points D002 and D010 are also monitored monthly according to Table VII-3.

RECEIVED  
SEP 11 1989

9/8/89

DIVISION OF  
OIL, GAS & MINING  
TABLE VII-3

E.P.A. NPDES Water Monitoring Requirements

<u>Effluent Characteristic</u>	<u>Monitoring Frequency</u>
Flow	Monthly
Total Suspended Solids	Monthly
Total Dissolved Solids	Monthly
Total Iron	Monthly
pH	Monthly
Oil and Grease	Monthly

ACT/1007/1011-89E  
pending

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

August 21, 1989

Ms. Susan Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, UT 84180-1203

RECEIVED  
AUG 24 1989

RE: Mohrland Pipeline Replacement

DIVISION OF  
OIL, GAS & MINING

Dear Sue:

U.S. Fuel would like to obtain approval for a minor permit amendment in order to upgrade an additional section of the Mohrland pipeline. During the summer of 1988, six hundred feet of new ten inch steel line was installed with very good results. Since the replacement, leaks have occurred mainly on a twelve hundred (1200) foot long stretch of pipeline between the replaced pipeline and the Mohrland rail yard. Replacement of this pipe would substantially improve the performance of the pipeline and reduce the likelihood of damage to the road and environment.

If weather permits, we could complete installation of the new pipe before this winter but it is necessary that we begin immediately. The twenty foot lengths of new pipe would be laid along the old tram line above the existing water line. The lengths would then be welded together to form one continuous segment of pipe. The new, 1200 foot segment would then be tied into the existing pipeline at the upstream end on the tram line. At the downstream end, a two hundred foot long section of pipe would slope from the tram line down to the existing pipeline. The next pipeline replacement would then tie into phase II and continue down to the Mohrland rail yard.

Installation of the pipeline segment would create no significant surface disturbance. The pipe would be placed on the tram line with a cherry picker. Where it will not be possible to place it directly (a three hundred foot section), it will be moved into place with a small bulldozer. As the tram line is fairly level and in fairly good shape no major grading needs to be done before laying down the pipe. There is a three hundred foot section where large rocks have fallen and several small pinyon trees obstruct the pipeline path but minor grading should be sufficient. Some vegetation, consisting mainly of sagebrush and rabbitbrush and several small pinyon trees, may be removed. This area was disturbed once in the past and is sparsely vegetated. No critical vegetation or habitats currently exist along the tram line. Should the installation create any significant disturbance, seeding will be done this fall after the pipeline installation has been completed. The seed mix will be seed mix no. 1 from our reclamation plan. Any access created by the installation project will be removed or blocked to prevent vehicular use.



page two  
Aug. 21, 1989

Replacement of this section would eliminate one of the worst segments of the pipeline, improve the efficiency of the pipeline while decreasing maintenance costs and the potential for environmental damage.

Enclosed are fourteen copies of revised Appendix III-16 for your review. We hope approval can be granted quickly and installation completed before winter overtakes us.

Sincerely,



Jean Semborski  
Environmental Coordinator

pc: G. Barker  
M. Watson  
B. Gunderson

APPENDIX III-16

MOHRLAND PIPELINE MODIFICATION

Revised August 17, 1989

August 18, 1989

### MOHRLAND PIPELINE MODIFICATION

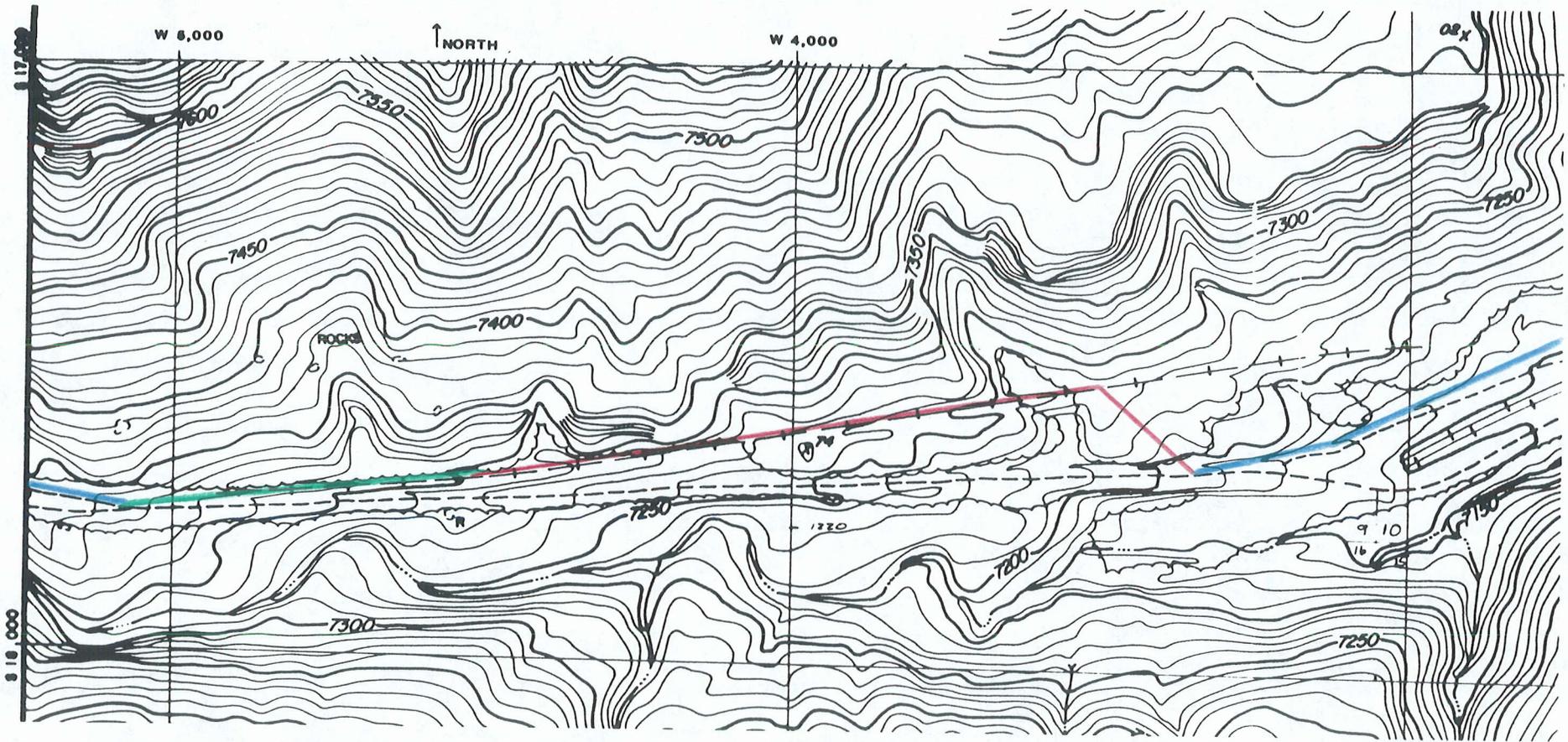
During the summer of 1988, U.S. Fuel presented a plan to modify a water supply pipeline near Mohrland, Utah. The pipeline runs from a portal in Cedar Creek canyon to water tanks in Hiawatha, Utah via a route adjacent to a dirt four wheel drive road and railroad track. In June of 1988 approval was granted to proceed with a modification to the pipeline in the area of T. 16 S., R. 8 E., Section 9, S 1/2 SE 1/4. Refer to the attached Mohrland Pipeline Modification map for orientation. Approximately 600 feet of new ten inch pipeline was laid along an old tram line just above the existing road.

The tram line is a bench like feature that once conveyed coal cars from the Mohrland portal to the Mohrland rail yard approximately 1.5 miles down the canyon. Now all that remains of the old tram line is the original grade. The tram line is flat in cross-section with a berm on the downstream edge. Refer to Diagram 1. It parallels the road for approximately 800 feet then gradually diverges north. Because of its proximity and configuration it was chosen as the location for the pipeline replacement project. It is a desirable location because it removes the pipeline from the vulnerable ditchline location and reduces the likelihood of environmental and road damage in the event a leak does occur. Also, the tram line was found to be level, in good shape and would not require significant amounts of grading before laying the pipe in place.

In 1989 another request was made to extend the pipeline replacement project another 1200 feet down the pipeline. The second phase of the pipeline project runs one thousand feet down the tram line and then slopes down two hundred feet to connect with the existing pipeline at the west end of the Mohrland rail yard. This location is an intermediate connection between phase II and phase III. When the next segment of pipeline is replaced, the pipe will connect with phase II and then continue down to meet the pipeline in the Mohrland rail yard.

Minimal disturbance has resulted from the pipeline replacement project. In phase one, new steel pipe was used to slope up from the existing pipeline onto the tram line. Twenty foot lengths of ten inch pipe were laid along the surface and welded together. In phase two, the pipe was laid along the old tram line for one thousand feet and then connected to the old pipeline at the west end of the Mohrland rail yard. The pipe will be left on the surface to avoid additional disturbance and facilitate inspection and maintenance. Pipeline freeze up during the winter will not occur due to the pressure and volume of water flow.

Vegetation currently growing along the tram line consists mainly of sagebrush, rabbitbrush and weeds. No critical vegetation or habitats currently exist from phase I down to the Mohrland rail yard. Should the installation create any significant disturbance, seeding will be done this fall after the pipeline installation has been completed. The seed mix will be seed mix no. 1 from the Hiawatha Mining and Reclamation Plan. Access to the tram will be restricted to prevent unauthorized vehicular use and damage to the pipeline.

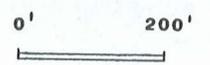


**MOHRLAND PIPELINE MODIFICATION**

**BLUE - EXISTING PIPELINE**

**GREEN - RELOCATED PIPELINE PHASE I**

**RED - REPLACED PIPELINE PHASE II**



A *TYPICAL CROSS-SECTION* A'

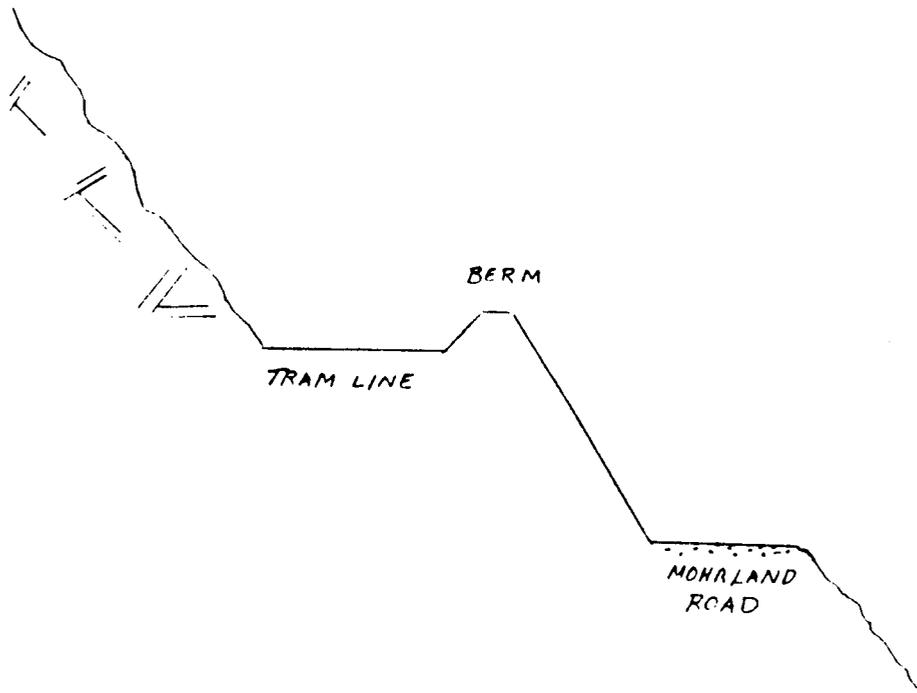


Diagram 1

File ACT/007/011-90A  
pending

# UNITED STATES FUEL COMPANY

P.O. Box A  
Hiawatha, Utah 84527

(801) 637-2252  
TELEX: 453-123

Jan. 5, 1990

Ms. Susan C. Linner, Permit Supervisor  
Division of Oil, Gas and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

RECEIVED  
JAN 11 1990

DIVISION OF  
OIL, GAS & MINING

Dear Sue:

U.S. Fuel has established a water truck refill site near the south end of the rail yard in Hiawatha and would like to amend their Small Area Exemption Plan to include this area. The site is bounded on the north by the State highway and on the east by the railroad. It was previously disturbed due to the fact that it is an access road along the railroad tracks south of the railroad crossing.

The new small area exemption would include only a small portion of this corridor (.34 acres) and would divert the drainage from the area into a catch basin directly south of the site. See Figure 10. The catch basin measures 26 feet by 85 feet and has an average depth of 1.5 feet. No grease or oil will be utilized at this site. The site will be large enough to park the water truck while it is refilling. The water used to fill the truck is sediment and contaminant free.

The soil at this site is sandy with some larger rock. The slope of the site is moderate. Therefore, erosion and sediment control should not be a problem.

In summary, this site will be used as a parking place for the water truck when it is refilling. Drainage from this site should not be a compliance problem. Diversion of runoff by means of a small ditch running down into the catch basin should adequately address any sediment control issues at this site.

Enclosed are four copies for review. Ten additional copies of the revised plan will be forwarded after approval has been issued.

Please contact me if you have any questions.

Sincerely,

*Jean Semborski*

Jean Semborski  
Envir. Coordinator

Enclosure

pc: D. Haddock



APPENDIX III-17  
U. S. Fuel Company

Small Area Exemptions  
Revised Jan. 5, 1990

UNITED STATES FUEL COMPANY

SMALL AREA EXEMPTIONS

The following list identifies locations in the permit area that because of their size and location employ alternative methods of sediment control. Figures 1 through 10, included with this appendix, delineate each area on a contour map and identify site locations by U.S. Fuel coordinates. The acreage comprising each site is summarized on page four of this appendix. Total acreage designated as small area exemption is 9.78. The total current disturbed acreage in the permit area is 278.7 acres (Feb. 1989).

HIAWATHA SMALL AREA EXEMPTIONS

Topsoil Pile Below Slurry Pond #5

Topsoil stockpiled below slurry pond #5 is located on a pile as indicated on Exhibit III-3 and VIII-4A. The stockpile has been revegetated. It is contained by a berm-ditch sediment control around its perimeter to control runoff from this site. Refer to Figure 1 for the location of this site.

Topsoil Pile Below Slurry Pond #4

In 1988 topsoil was stripped from an area below slurry pond #4 and stockpiled adjacent to the site. The pile was seeded, mulched and a berm-ditch sediment control was constructed around the perimeter to control runoff. The dimensions of the stockpile are 145 feet long by 60 feet wide. See Exhibit III-3 and Figure 1 for site location.

Equipment Storage Yard Topsoil Pile

Topsoil was stockpiled at this location in 1978. The pile has been revegetated. Runoff from the topsoil pile would run into the Equipment Storage Yard and be contained by the sediment control basin which treats drainage from the Equipment Storage Yard area. This stockpile is 515 feet long and 50 feet wide. Figure 1 depicts the location of this exemption.

Area East Of Lower Rail Yard And North Of Refuse Area

The area directly east of the lower rail yard and north of the refuse area on the map drains to sediment control structures east of the lower rail yard. Runoff from the area east of the lower rail yard and the area north of the refuse storage area contributes runoff to the sediment control structures. As can be seen from Exhibit III-3, neither the lower rail yard nor the railroad right of way is included as part of U.S. Fuel's disturbed area, however, U.S. Fuel has constructed two catch basins east of the rail yard to contain runoff from this site. The northern catch basin is designed

Small Area Exemptions  
Page Two

to contain runoff from the area depicted in Exhibit III-3 as well. The southern catch basin has no diversion ditches but collects drainage directly from a semi-circular zone above it. Figures 2 and 9 show the drainage area and catch basins for this site. A cross section of the basin is shown on Exhibit III-3 also.

Due to the physical constraints of the site, it would not be feasible to install a sediment pond to treat drainage from this area. These smaller structures have proven to be capable of handling large flows and spring runoff. They appear to be compatible with the needs of this area and satisfy the intent of the law. See the attached calculations sheets relating to this site.

Water Truck Fill Site

Near the railroad crossing at the south end of the rail yard there is a small site where the water truck refills. A ditch collects water from the site and conveys it twenty feet into a small catch basin. The basin measures 85 feet long by an average of 26 feet wide and 1.5 feet deep. It is more than adequate to contain what little runoff collects on this site. Refer to Figure 10 for a map of this site.

MIDDLE FORK CANYON SMALL AREA EXEMPTIONS

Middle Fork Substation And Water Tank Area

The substation and water tank area is shown on Figure 3 as area "C". It is located at the north end of the Middle Fork disturbed area. The minor amount of runoff from this site is adequately treated by the vegetation surrounding it. A watertight block wall has been constructed around the substation to contain any runoff or spillage within it. As this remote area contains only the substation and water tank, very little activity occurs here.

Middle Fork Timber Yard

Below the Middle Fork mine yard and adjacent to the road is an area used to store timbers for use in the mine. Because of the nature of the material stored here and the small area of disturbance, drainage is treated in an alternate manner. Gravel berms help retain water within the disturbed area and channel it toward approved outflow locations. The outflow route passes through a Gabian filter basket filled with gravel to filter any runoff leaving the disturbed area. Refer to Exhibit III-1A and Figure 4 for site location.

SOUTH FORK CANYON SMALL AREA EXEMPTIONS

South Fork Topsoil Pile

The topsoil site in South Fork was established during construction of the South Fork Loadout in 1981. The stockpile, made up of three adjacent piles, has been revegetated and is protected by a berm-ditch sediment control around the perimeter. The first pile measures 55 feet by 45 feet wide. The second pile is 35 feet in diameter. The largest pile measures 52 feet wide by 145 feet long. Exhibits III-4B, VIII-4 and Figure 5 depict the location of this stockpile.

South Fork Water Tank Area

Exhibit III-4A indicates the South Fork water tank and travel corridor with a dashed outline. As the water tank and trail to it have been in place for many years, vegetation has become established on and along the trail and around the water tank. The vegetative cover is effective in minimizing erosion and filtering runoff. The trail is utilized to access the water tank infrequently.

Utilization of the vegetation cover appears to be the best choice of sediment control at this location for several reasons. First, vegetation has worked well in the past. No significant erosion is evident. Second, it requires minimal maintenance and is the most natural. Last, it creates no new disturbance as would the installation of sediment ponds and ditches.

NORTH FORK CANYON SMALL AREA EXEMPTIONS

North Fork Junction Topsoil Pile

At the junction of the Middle Fork and North Fork roads there is a small topsoil pile. This is the only one presently at this site although expansion is possible at some time in the future. The topsoil pile measures fifty feet in diameter and is protected by a berm-ditch sediment control and has been revegetated. This site is depicted on Exhibit VIII-4 and Figure 7.

North Fork Ventilation Portal Pad

Runoff from the pad area is treated by passing through a filter fabric fence before leaving the disturbed area. Refer to Exhibit III-2 and Figure 8 for this site location. The area has been revegetated. This location is remote and has negligible activity associated with it.

ACREAGE COMPRISING SMALL AREA EXEMPTIONS

<u>SITE</u>	<u>ACRES</u>
Topsoil Pile Below Slurry Pond No. 5	0.28
Topsoil Pile Below Slurry Pond No. 4	0.25
Topsoil Pile At Equipment Storage Yard	0.69
Area East Of Lower Rail Yard	4.70
Water Truck Fill Site	0.34
Middle Fork Substation And Water Tank	0.83
Middle Fork Timber Yard	1.28
South Fork Topsoil Pile	0.30
South Fork Water Tank	0.42
Topsoil Pile At North Fork Junction	0.06
North Fork Ventilation Pad	<u>0.63</u>
Total	9.78

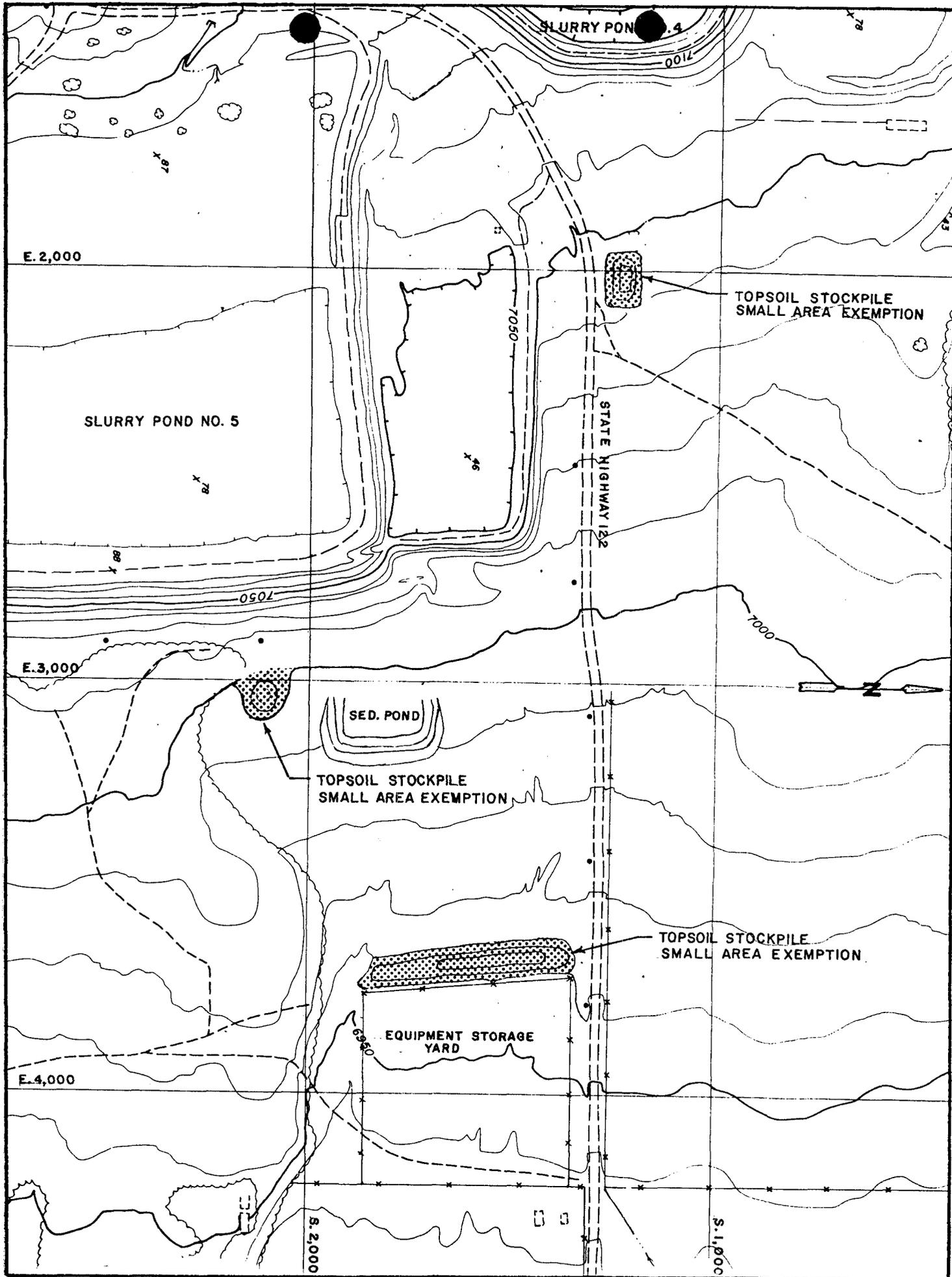


FIG.1 SMALL AREA EXEMPTIONS EAST OF HIAWATHA



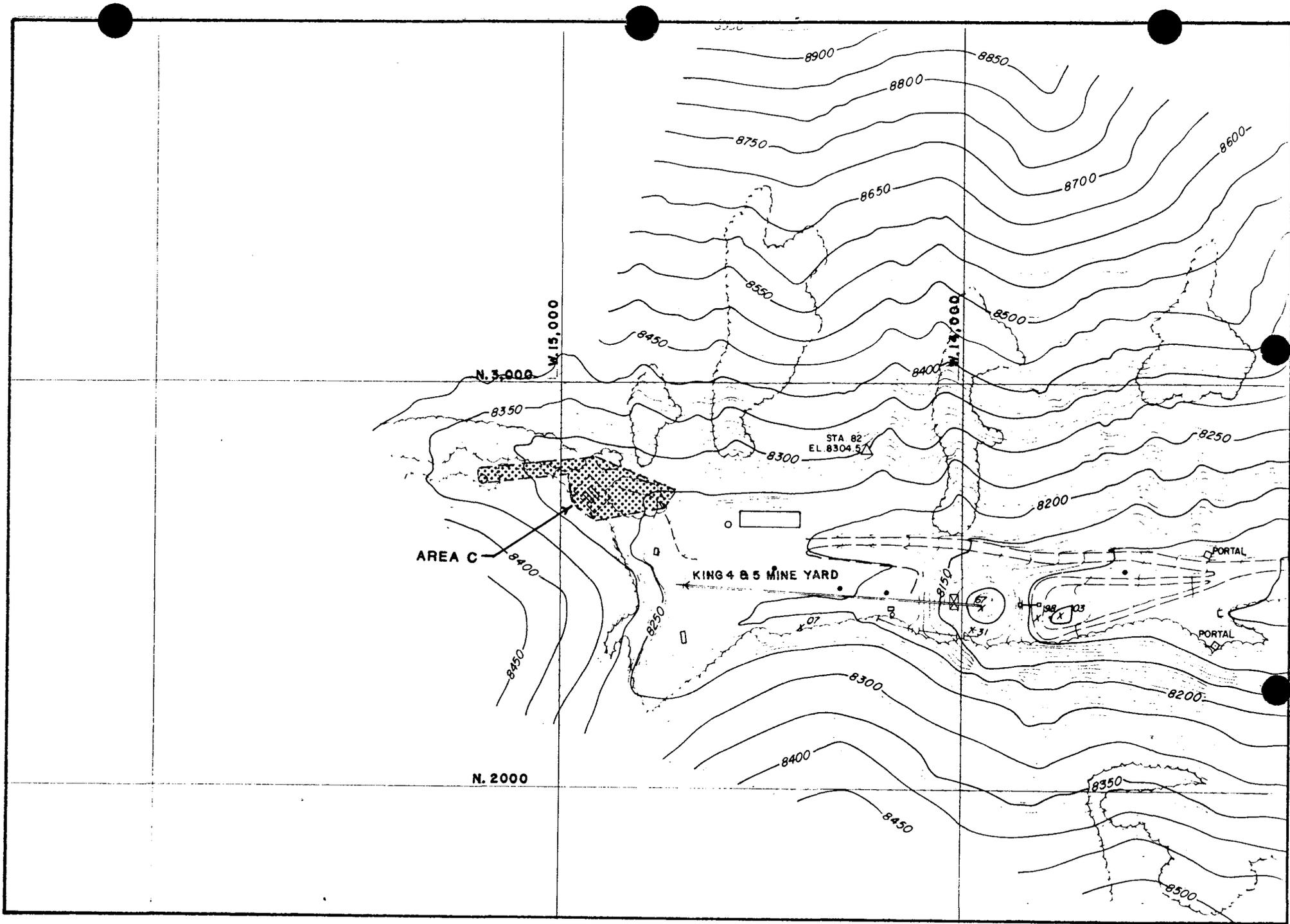


FIG. 3 SMALL AREA EXEMPTION MIDDLE FORK SUBSTATION & WATER TANK AREA

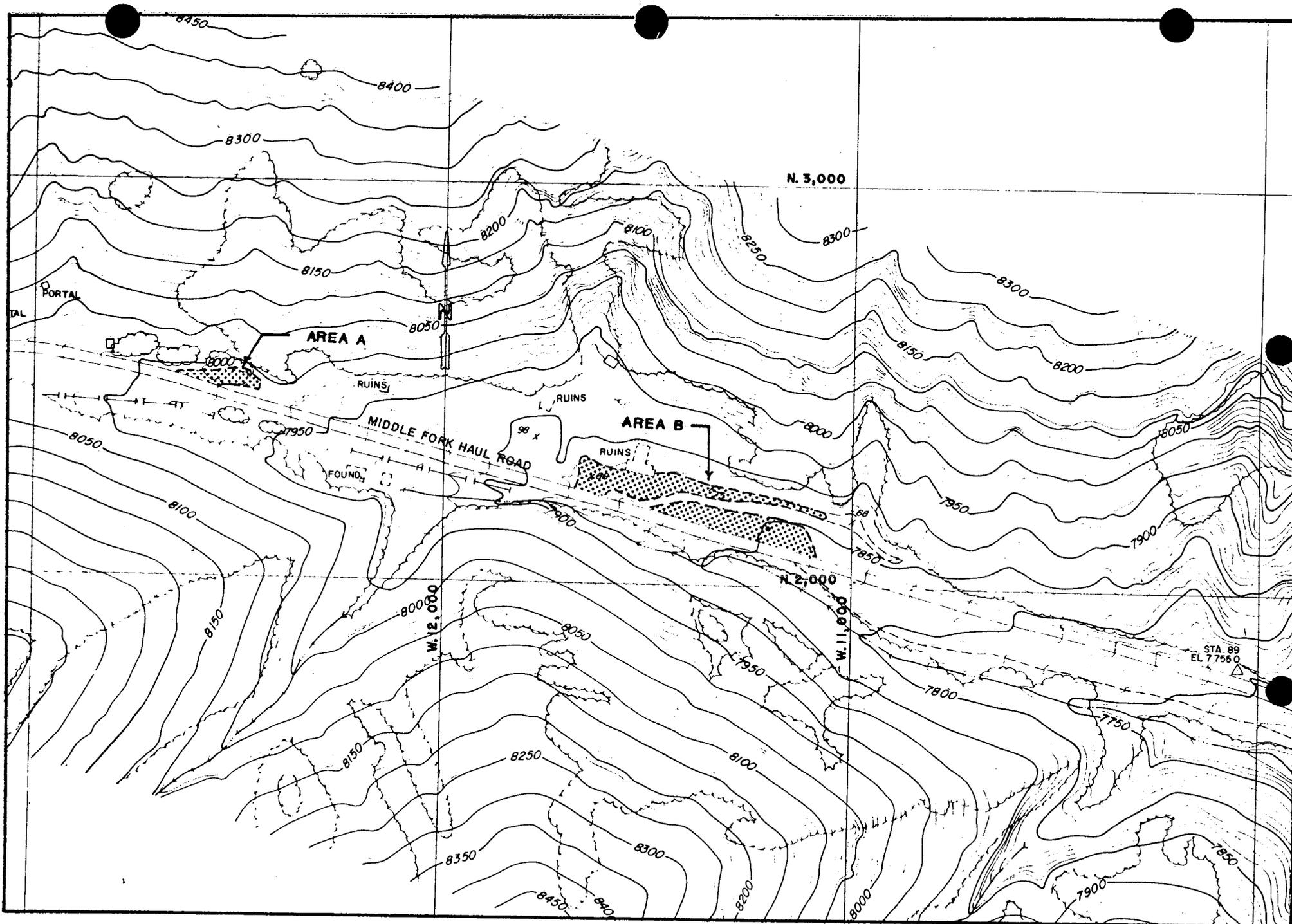


FIG. 4 SMALL AREA EXEMPTION MIDDLE FORK TIMBERYARDS

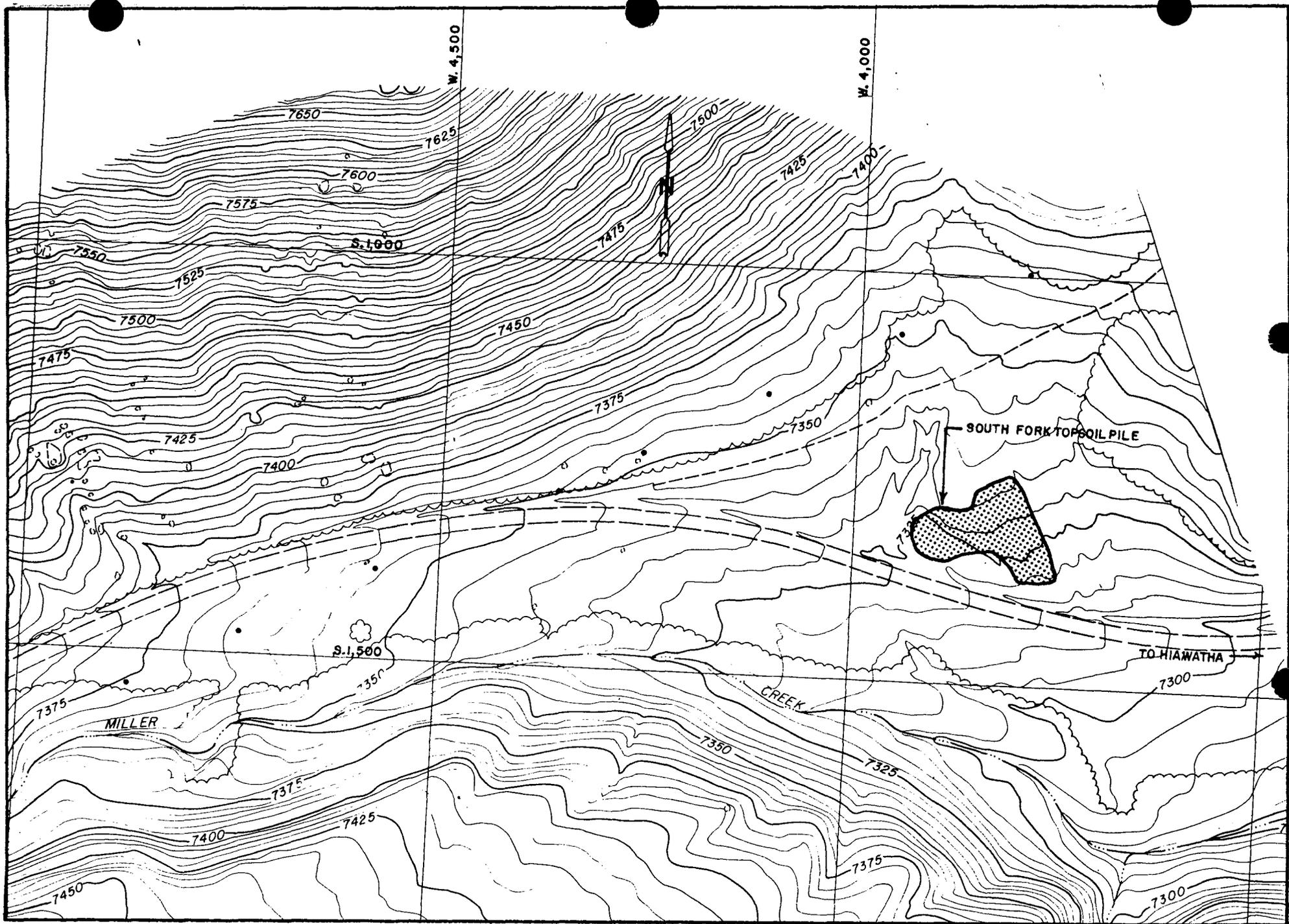


FIG. 5 SMALL AREA EXEMPTION SOUTH FORK TOPSOIL PILE

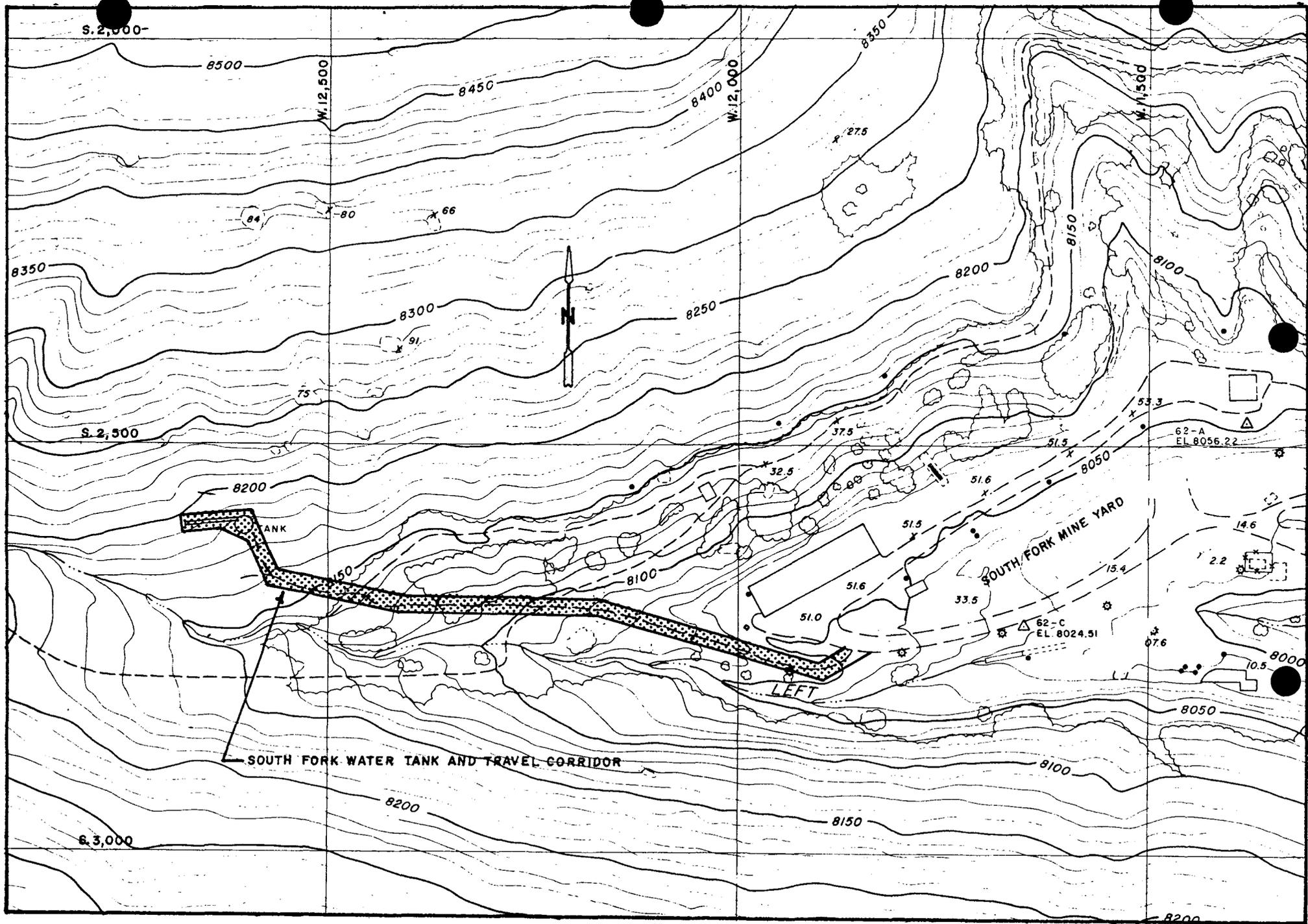


FIG. 6 SMALL AREA EXEMPTION SOUTH FORK WATER TANK AND ACCESS CORRIDOR

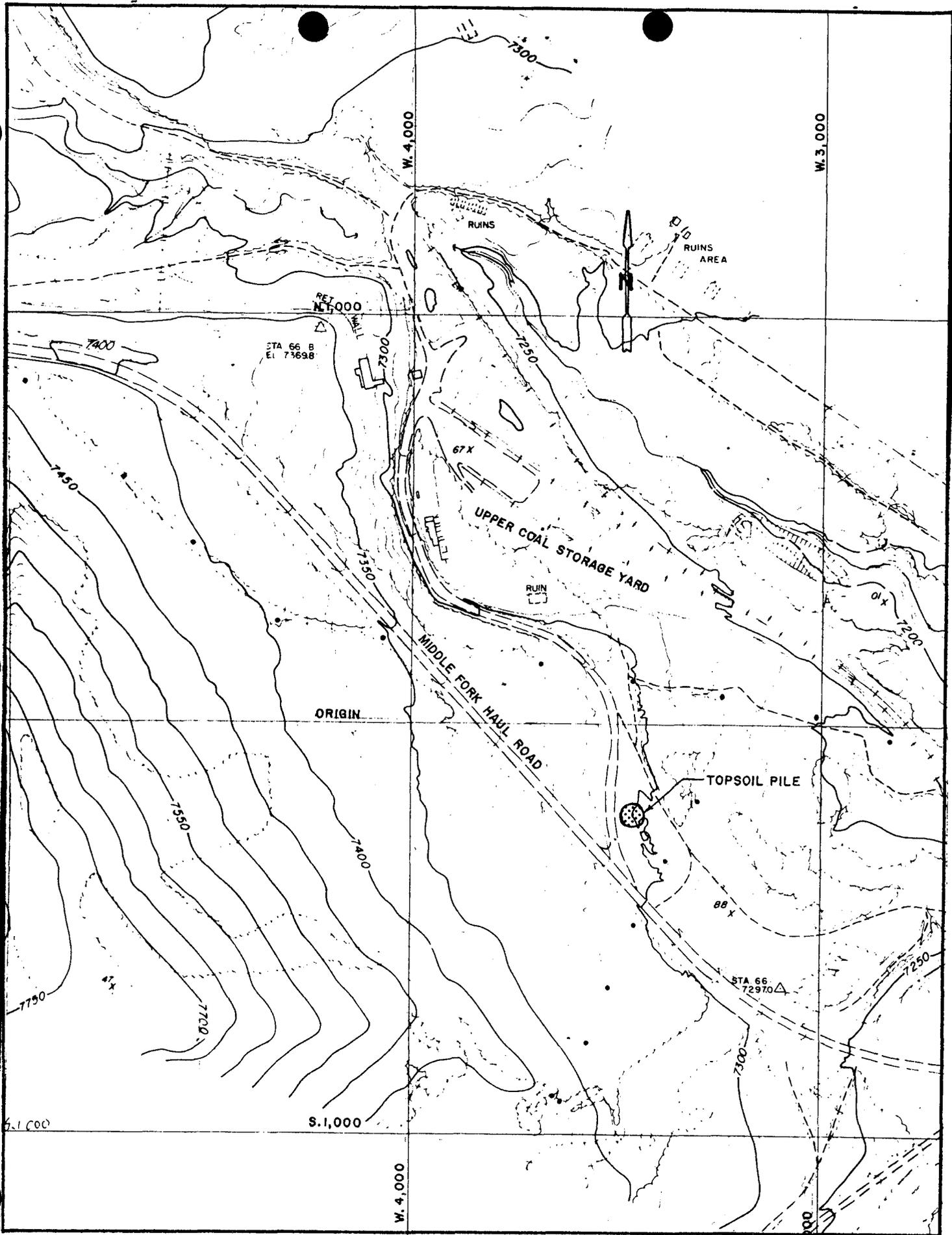


FIG.7 SMALL AREA EXEMPTION NORTH FORK JUNCTION TOPSOIL PILE



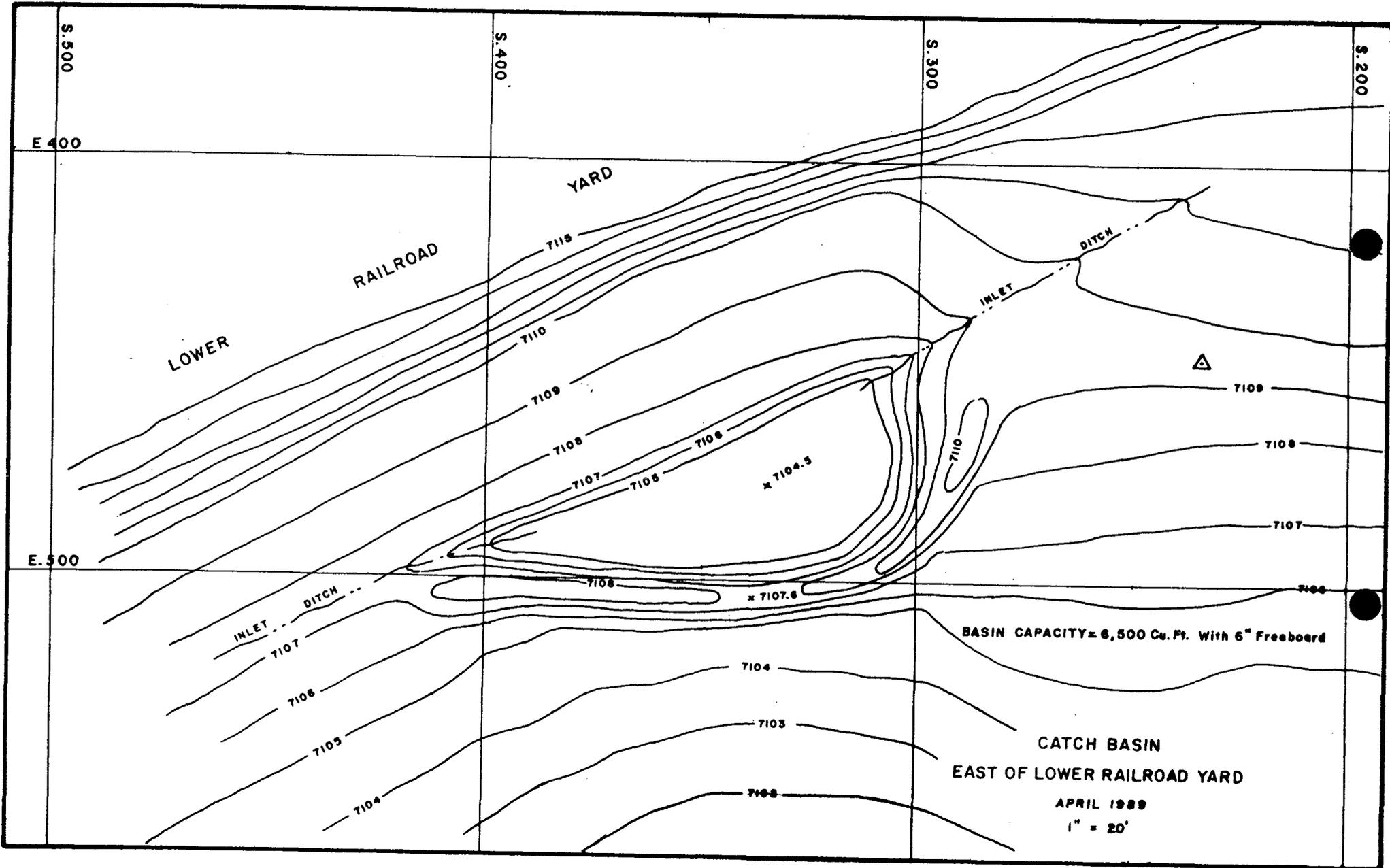


FIG. 9 CATCH BASIN EAST OF LOWER RAILROAD YARD

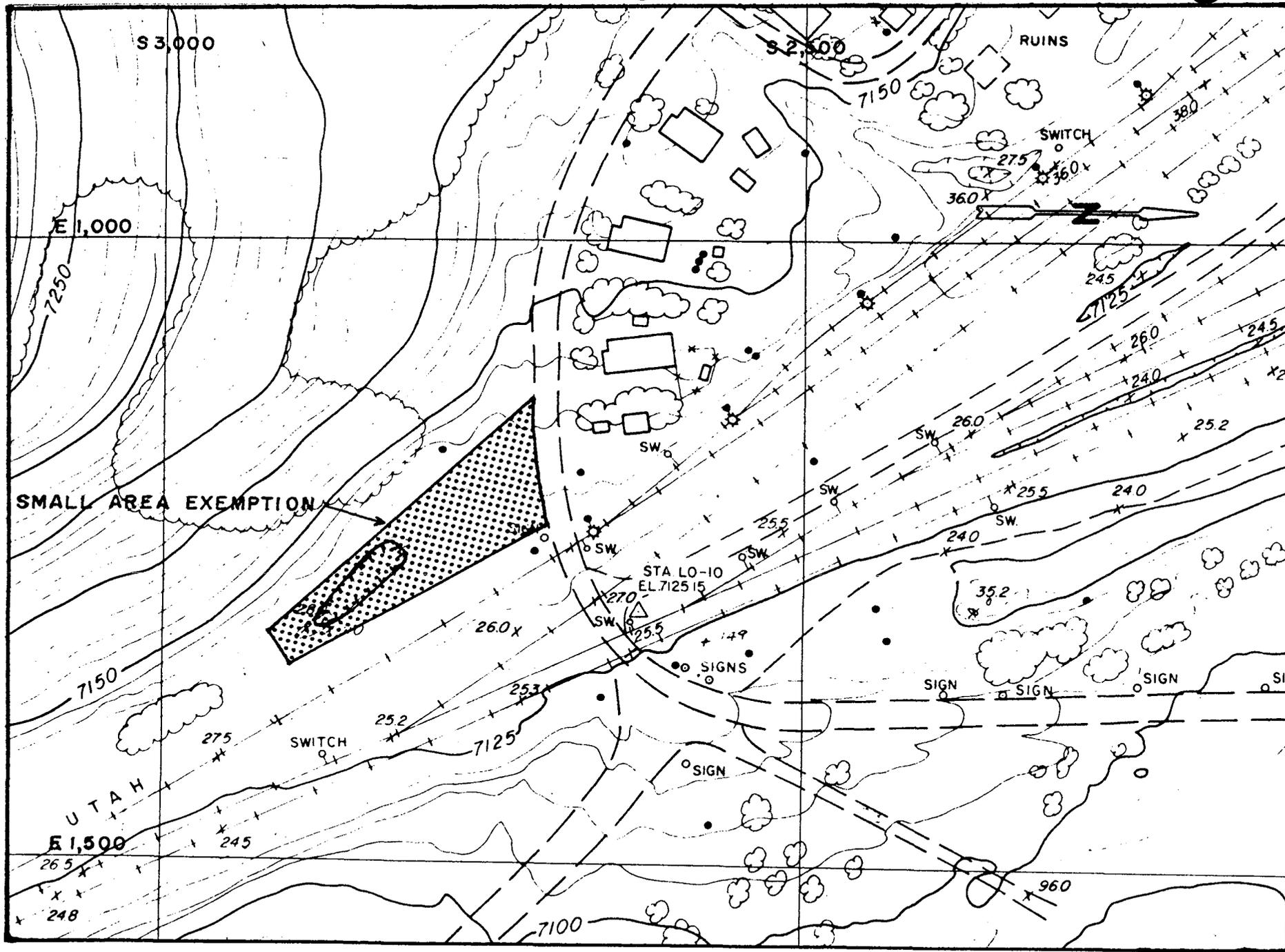


FIG. 10 SMALL AREA EXEMPTION - WATER TRUCK FILL LOCATION

VOLUME OF CATCH BASIN EAST  
OF LOWER RAILROAD YARD

BASIN CAPACITY = 6,500 FT<sup>3</sup>

RUNOFF CURVE NUMBER = 74

REQUIRED CAPACITY = 5,929.172 FT<sup>3</sup>  
(from storm run-  
off estimate)

CONCLUSION: CATCH BASIN AS CURRENTLY EXISTS WILL ADEQUATELY  
HANDLE RUNOFF FROM THE DESIGN STORM

STORM RUNOFF ESTIMATE

FOR

AREA CONTRIBUTING TO CATCH BASIN EAST OF LOWER RAILROAD YARD

p = Precipitation Depth (in.)

$$p := 2.25 \text{ in. (10 yr., 24 hr. storm at Hiawatha)}$$

A = Area Contributing to Catch Basin (ft.)

$$A := 150400 \text{ sq. ft.}$$

l = Hydraulic Length of Drainage Basin (ft.)

$$l := 500 \text{ ft.}$$

Y = Average Slope of Drainage Basin (%)

$$Y := 6 \%$$

CN = Runoff Curve Number

$$CN := 74$$

$$S := \frac{1000}{CN} - 10 \quad S = 3.514$$

L = Watershed Lag (hrs.)

$$L := \frac{l^{0.8} \cdot (S + 1)^{0.7}}{1900 \cdot Y^{0.5}} \quad L = 0.089 \text{ hr.}$$

Tc = Time of Concentration (hrs.)

$$Tc := \frac{L}{0.6} \quad Tc = 0.148 \text{ hr.}$$

Q = Runoff Volume (in.)

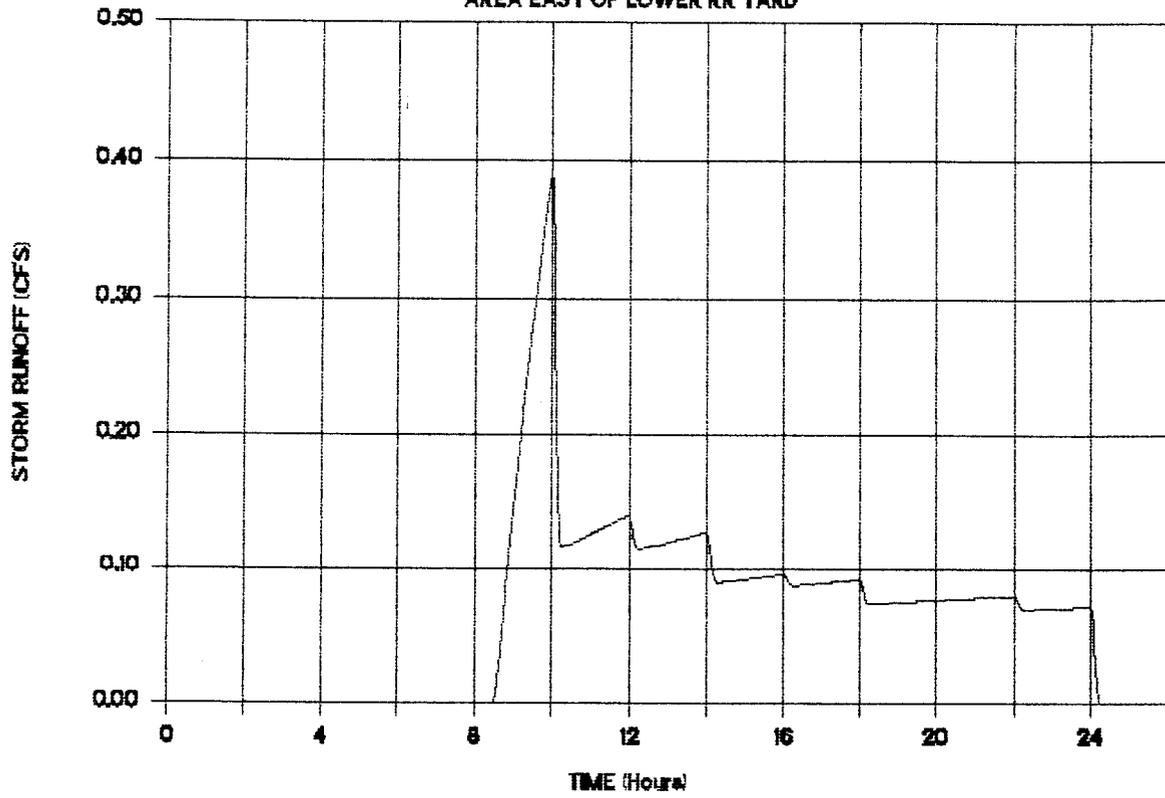
$$Q := \frac{(p - 0.2 \cdot S)^2}{p + 0.8 \cdot S} \quad Q = 0.473 \text{ in.}$$

$$\text{Total\_Runoff} := \frac{Q}{12} \cdot A$$

$$\text{Total\_Runoff} = 5929.172 \text{ Cu.Ft.}$$

# STORM RUNOFF DETERMINATION

AREA EAST OF LOWER RR YARD



STORM RUNOFF ESTIMATE

FOR

AREA CONTRIBUTING TO CATCH BASIN ABOVE PREP. PLANT BYPASS CULVERT OUTLET

p = Precipitation Depth (in.)

p := 2.25 in. (10 yr., 24 hr. storm at Hiawatha)

A = Area Contributing to Catch Basin (sq.ft.)

A := 54400 sq.ft.

CN = Runoff curve Number

CN := 60

$S := \frac{1000}{CN} - 10$       S = 6.667

Q = Runoff Volume (in.)

$Q := \frac{(p - 0.2 \cdot S)^2}{p + 0.8 \cdot S}$       Q = 0.111 in.

Total\_Runoff :=  $\frac{Q}{12} \cdot A$       Total\_Runoff = 502.32 cu.ft.

VOLUME OF CATCH BASIN ABOVE  
BYPASS CULVERT OUTLET

Area of Catch Basin = 2000 Ft.<sup>2</sup>

Average Depth of Catch Basin  
(Minus .3' Freeboard) = 3.2 Feet

Average Depth x Area  
3.0' x 2000 Ft.<sup>2</sup> = 6000 Ft.<sup>3</sup>

Required Capacity = 502.3 Ft.<sup>3</sup>  
(From Storm Runoff Estimate)

Conclusion: Catch basin as currently designed, should adequately handle runoff from design storm.

COAL PAP AMENDMENT/REVISION/NOV & EXPLORATION TRACKING FORM  
(Revised: 9/14/87)

Type of Proposal:

MRP AMENDMENT X  
MRP REVISION \_\_\_\_\_  
EXPLORATION \_\_\_\_\_

TDN # \_\_\_\_\_  
NOV #N 80 28 2 1, # 1 OF 1  
CO #C \_\_\_\_\_, # \_\_\_\_\_ OF \_\_\_\_\_

I. B. C. \_\_\_\_\_ (Incidental Boundary Change)

Title of Proposal: Truck Runaway road

Company Name: United States Fuel Company

Project or Mine Name: Hiawatha

File #: (INA / PRO / (ACT) / CEP) 007 / 011 <sup>90C</sup> ~~88~~ # New Acres: \_\_\_\_\_

LEAD Reviewers: Lynn

Tech Memo Drafted

HYDROLOGY Rick  
BIOLOGY Lynn  
ENGINEER Randy  
SOILS \_\_\_\_\_  
GEOLOGY \_\_\_\_\_

YES NO  
( ) ( )  
( ) ( )  
( ) ( )  
( ) ( )  
( ) ( )

\*Please Check Appropriate Box!!

Dates:

- (1) Initial Plan Received May 2, 1990  
Tech Review Due May 16, 1990  
Tech Review Complete \_\_\_\_\_  
DOGM Response Sent \_\_\_\_\_  
Optr. Response Due \_\_\_\_\_
- (2) Optr. Response Rcvd. \_\_\_\_\_  
Tech Review Due \_\_\_\_\_  
Tech Review Complete \_\_\_\_\_  
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- (4) Optr. Resubmission \_\_\_\_\_  
Tech Review Due \_\_\_\_\_  
Tech Review Compl. \_\_\_\_\_  
DOGM Response Sent \_\_\_\_\_  
Optr. Response Due \_\_\_\_\_
- (5) Optr. Resp. Rcvd. \_\_\_\_\_  
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Tech Review Compl. \_\_\_\_\_  
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- Condn'l Approval \_\_\_\_\_  
Stipulations Due \_\_\_\_\_  
Stips. Received \_\_\_\_\_  
DOGM Response Sent \_\_\_\_\_  
Final Approval \_\_\_\_\_  
Filed in MRP \_\_\_\_\_  
Author \_\_\_\_\_

COMMENTS: 4 copies received

VOLUME OF CATCH BASIN EAST  
OF LOWER RAILROAD YARD

BASIN CAPACITY = 6,500 FT<sup>3</sup>

RUNOFF CURVE NUMBER = 74

REQUIRED CAPACITY = 5,929.172 FT<sup>3</sup>  
(from storm run-  
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STORM RUNOFF ESTIMATE

FOR

AREA CONTRIBUTING TO CATCH BASIN EAST OF LOWER RAILROAD YARD

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$$l := 500 \text{ ft.}$$

Y = Average Slope of Drainage Basin (%)

$$Y := 6 \%$$

CN = Runoff Curve Number

$$CN := 74$$

$$S := \frac{1000}{CN} - 10 \quad S = 3.514$$

L = Watershed Lag (hrs.)

$$L := \frac{l^{0.8} \cdot (S + 1)^{0.7}}{1900 \cdot Y^{0.5}} \quad L = 0.089 \text{ hr.}$$

Tc = Time of Concentration (hrs.)

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Q = Runoff Volume (in.)

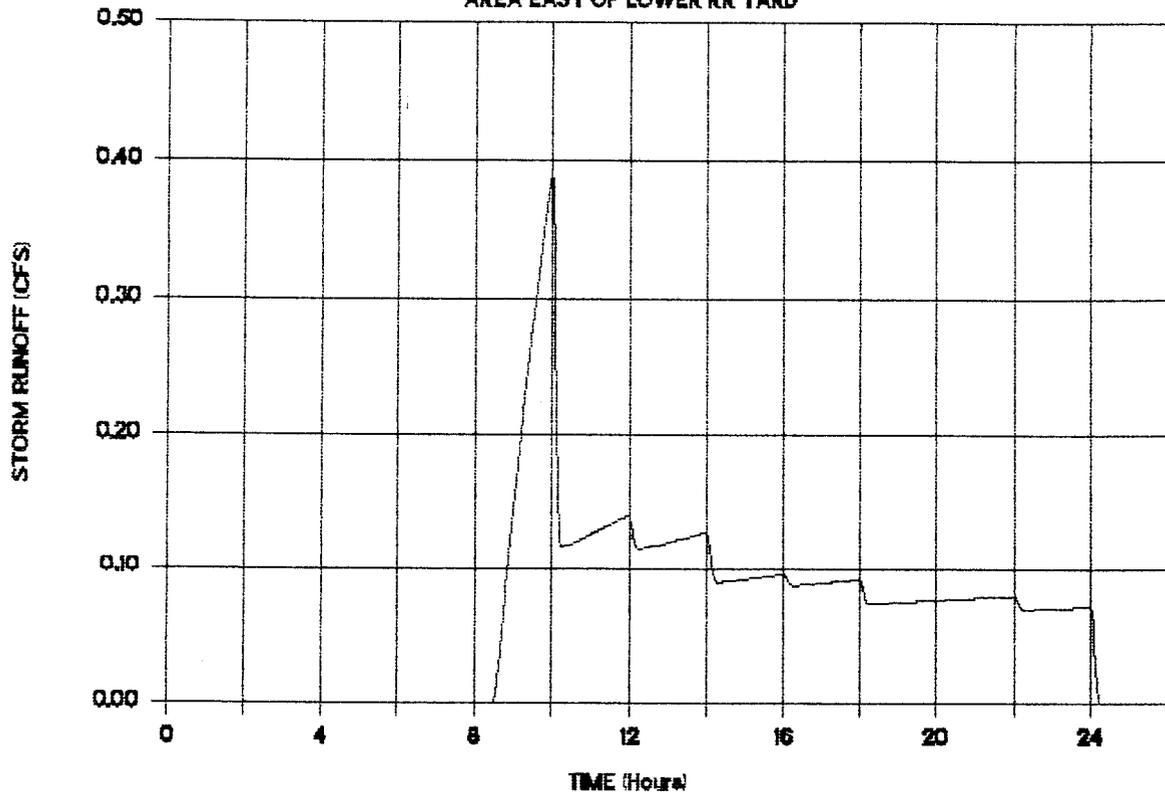
$$Q := \frac{(p - 0.2 \cdot S)^2}{p + 0.8 \cdot S} \quad Q = 0.473 \text{ in.}$$

$$\text{Total\_Runoff} := \frac{Q}{12} \cdot A$$

$$\text{Total\_Runoff} = 5929.172 \text{ Cu.Ft.}$$

# STORM RUNOFF DETERMINATION

AREA EAST OF LOWER RR YARD



STORM RUNOFF ESTIMATE

FOR

AREA CONTRIBUTING TO CATCH BASIN ABOVE PREP. PLANT BYPASS CULVERT OUTLET

p = Precipitation Depth (in.)

p := 2.25 in. (10 yr., 24 hr. storm at Hiawatha)

A = Area Contributing to Catch Basin (sq.ft.)

A := 54400 sq.ft.

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CN := 60

$S := \frac{1000}{CN} - 10$       S = 6.667

Q = Runoff Volume (in.)

$Q := \frac{(p - 0.2 \cdot S)^2}{p + 0.8 \cdot S}$       Q = 0.111 in.

Total\_Runoff :=  $\frac{Q}{12} \cdot A$       Total\_Runoff = 502.32 cu.ft.

VOLUME OF CATCH BASIN ABOVE  
BYPASS CULVERT OUTLET

Area of Catch Basin = 2000 Ft.<sup>2</sup>

Average Depth of Catch Basin  
(Minus .3' Freeboard) = 3.2 Feet

Average Depth x Area  
3.0' x 2000 Ft.<sup>2</sup> = 6000 Ft.<sup>3</sup>

Required Capacity = 502.3 Ft.<sup>3</sup>  
(From Storm Runoff Estimate)

Conclusion: Catch basin as currently designed, should adequately handle runoff from design storm.

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(Revised: 9/14/87)

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MRP REVISION \_\_\_\_\_  
EXPLORATION \_\_\_\_\_

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  - (5) Optr. Resp. Rcvd. \_\_\_\_\_  
Tech Review Due \_\_\_\_\_  
Tech Review Compl. \_\_\_\_\_  
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DOGM Response Sent \_\_\_\_\_  
Final Approval \_\_\_\_\_  
Filed in MRP \_\_\_\_\_  
Author \_\_\_\_\_

COMMENTS: 4 copies received

## PLAN FOR MODIFICATION OF MIDDLE FORK TRUCK RUNAWAY ROAD

In early March of 1990 a dual trailer coal haul truck lost its brakes while descending the Middle Fork haul road between Hiawatha and the King 4 mine. Fortunately, the driver was able to utilize an existing runaway road near the mouth of the canyon and safely stop the loaded truck. This was the first time the runaway road was used for its intended purpose since it was constructed in 1983. Its effectiveness for retarding a loaded truck was not fully known until this incident. The runaway road was 20 ft. wide and 700 ft. long. It was originally covered with approximately 1.5 ft. of 1/4 inch road surfacing gravel which was intended to allow truck wheels to sink in and retard the truck by friction. When the runaway occurred, it was found that the gravel did not retard as well as expected. Part of the reason appears to be that moisture in the gravel had frozen, preventing the wheels from sinking in to adequate depth. The runaway truck actually traveled beyond the end of the road and stopped just short of a steep incline.

For safety reasons, it was decided to modify the road immediately, to make it more effective in the event of another incident. Modification began the same day the incident occurred. This included lengthening the road from 700 to 1,000 ft., curving the extended portion uphill away from a nearby steep downslope and placing a 2 ft. high windrow of drainfield size gravel down the center. The windrow is intended to contact the axles

of a runaway truck and assist in retardation. Also, a drainage ditch was constructed on the uphill side of the road to divert runoff. An access corridor, approximately 14 ft. wide was cleared through dense sagebrush to facilitate construction of the ditch. There is a 6 to 8 ft. wide strip of undisturbed vegetation between the road and the drainage ditch. Total disturbed area is 0.8 acre.

Figure 1 shows the location of the runaway road in relation to the town. Figure 2 gives a larger scale layout with hydrologic details. The road is located on soil type, Strych, described in the Soil Conservation Services's Soil Survey of Carbon Area Utah. The soil is classified as hydrologic group B. Predominant vegetation is sagebrush as described in reference area SBR12 of Appendix VIII-1 of our permit application. There are no cuts, fills or side slopes associated with the road. One culvert will be installed at the lowest point in the road profile. Storm runoff estimates and ditch and culvert sizing calculations are given on the following pages. Disturbed areas resulting from this modification were seeded with seed mix #1 from our reclamation plan during the week of March 26. Perimeter markers have been installed around the site.

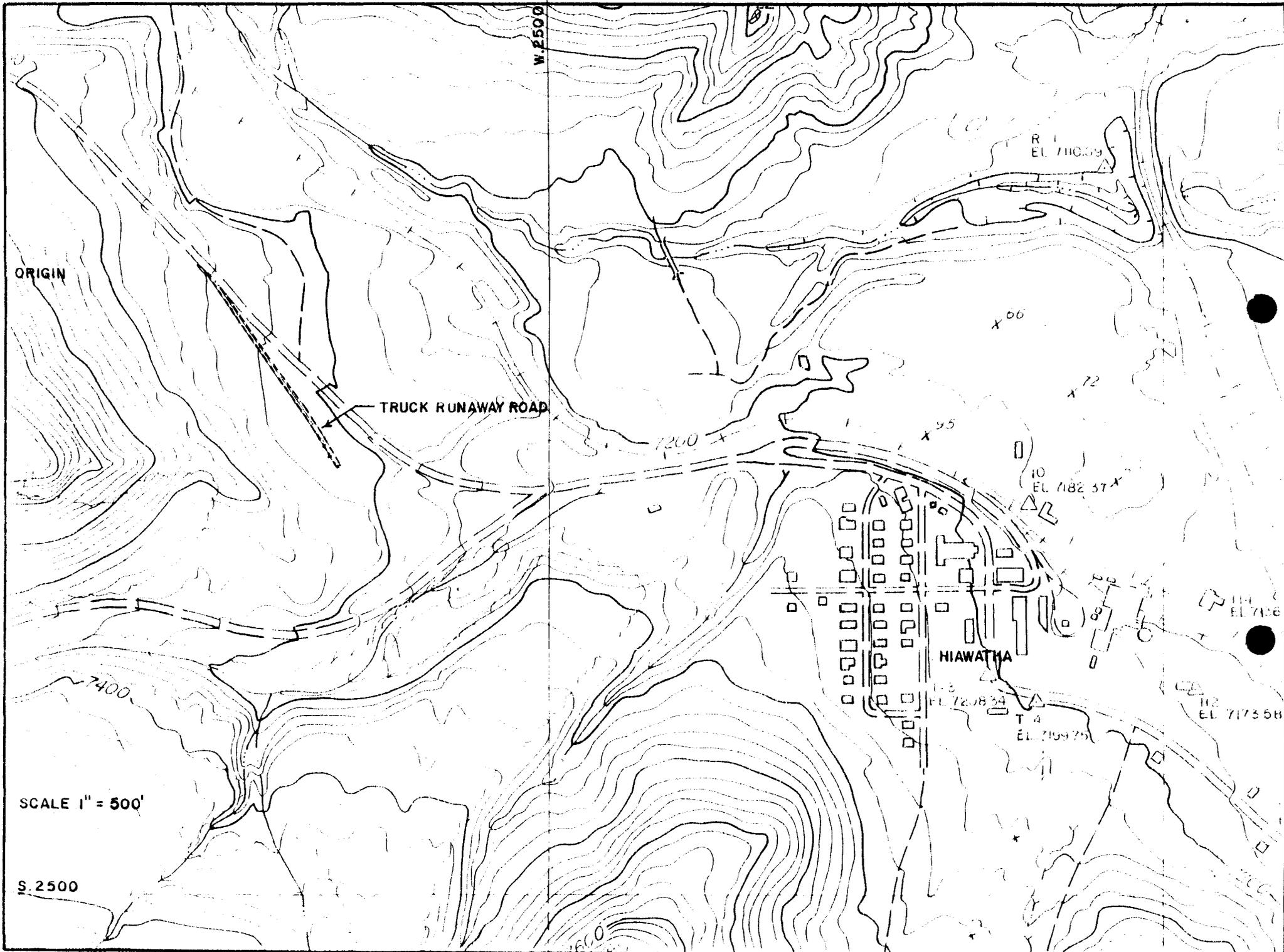


FIG.1 TRUCK RUNAWAY ROAD LOCATION MAP

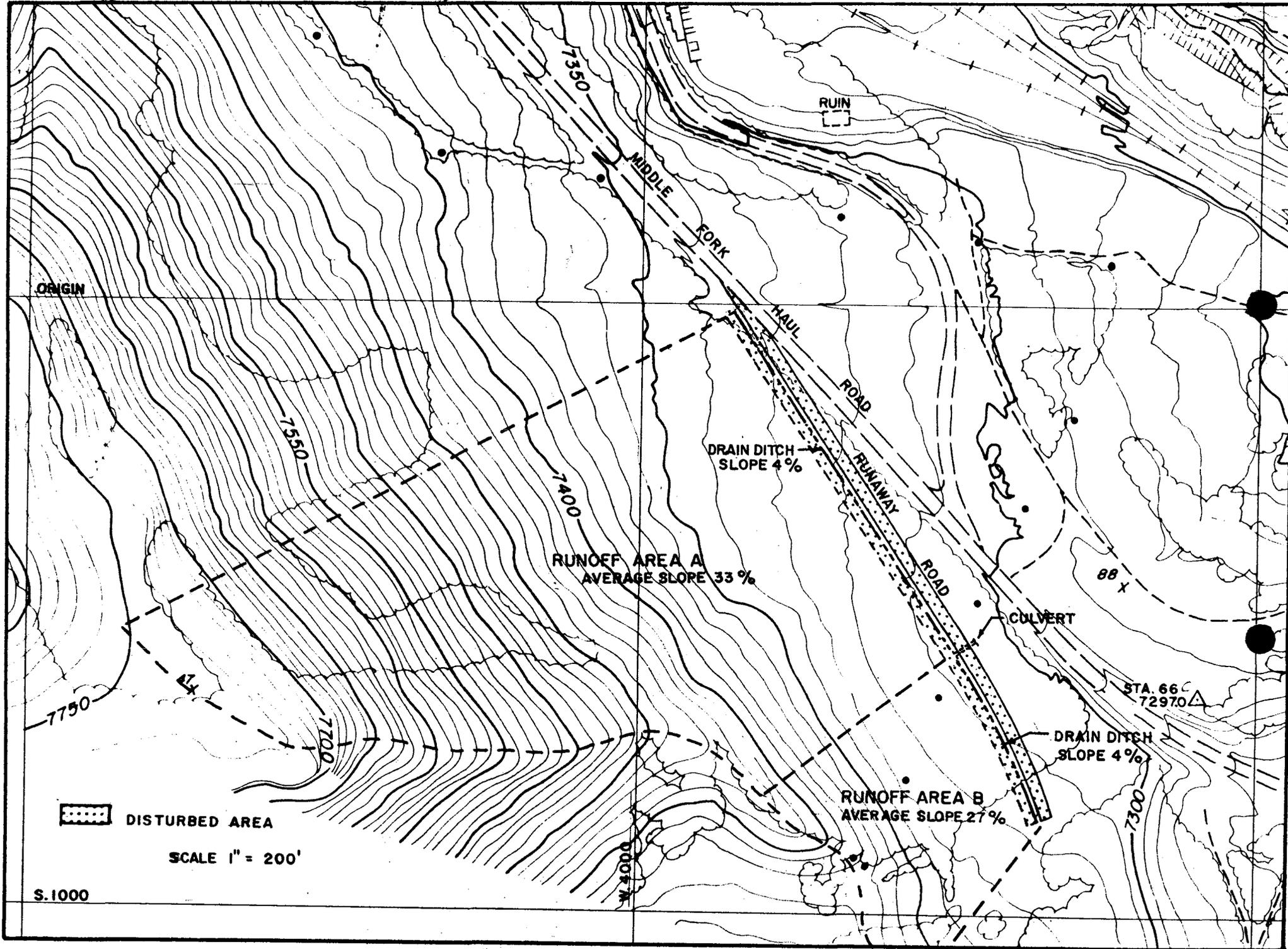


FIG. 2 TRUCK RUNAWAY ROAD SHOWING HYDROLOGIC FEATURES.

STORM RUNOFF DETERMINATION  
AREA A OF RUNAWAY ROAD DRAINAGE BASIN

p = Precipitation Depth (in.)  
 p := 2.25 in. (10 yr., 24 hr. storm at Hiawatha)  
 A = Area Contributing to Drain Ditch (sq. mi.)  
 A := 0.0207 sq.mi.  
 l = Hydraulic Length of Drainage Basin (ft.)  
 l := 1360 ft.  
 Y = Average Slope of Drainage Basin  
 Y := 33 %

CN = Runoff Curve Number (From Fig. 3)  
 CN := 57  

$$S := \frac{1000}{CN} - 10 \qquad S = 7.54$$

L = Watershed Lag (hrs.)  

$$L := \frac{(1)^{0.8} \cdot (S + 1)^{0.7}}{1900 \cdot Y^{0.5}} \qquad L = 0.13 \text{ hr.}$$

Tc = Time of Concentration (hrs.)  

$$Tc := \frac{L}{0.60} \qquad Tc = 0.22 \text{ hr.}$$

STORM RUNOFF DETERMINATION  
FOR  
AREA A

INPUT SUMMARY:

```
=====
DISTRIBUTION = SCS TYPE B           RUNOFF AREA = .0207 SQ. MILES
RAINFALL DEPTH = 2.25 INCHES        RUNOFF CURVE NO. = 57
STORM DURATION = 24 HOURS           TIME OF CONCENTRATION = .22 HRS.
=====
```

OUTPUT SUMMARY:

```
=====
TOTAL RUNOFF DEPTH = .066 IN.        TIME TO PEAK = 21.999 HOURS
INITIAL ABSTRACTION = 1.509 IN.     RUNOFF VOLUME CHECK = .066 IN.
PEAK FLOW = .092 CFS.
=====
```

STORM RUNOFF DETERMINATION  
AREA B OF RUNAWAY ROAD DRAINAGE BASIN

p = Precipitation Depth (in.)  
 p := 2.25 in. (10 yr., 24 hr. storm at Hiawatha)

A = Area Contributing to Drain Ditch (sq. mi.)  
 A := 0.0044 sq.mi.

l = Hydraulic Length of Drainage Basin (ft.)  
 l := 540 ft.

Y = Average Slope of Drainage Basin  
 Y := 27 %

CN = Runoff Curve Number (From Fig. 3)  
 CN := 57

$S := \frac{1000}{CN} - 10$                       S = 7.54

L = Watershed Lag (hrs.)  
 $L := \frac{(l)^{0.8} \cdot (S + 1)^{0.7}}{1900 \cdot Y^{0.5}}$                       L = 0.07 hr.

Tc = Time of Concentration (hrs.)  
 $Tc := \frac{L}{0.60}$                               Tc = 0.12 hr.

STORM RUNOFF DETERMINATION  
FOR  
AREA B

INPUT SUMMARY:

```

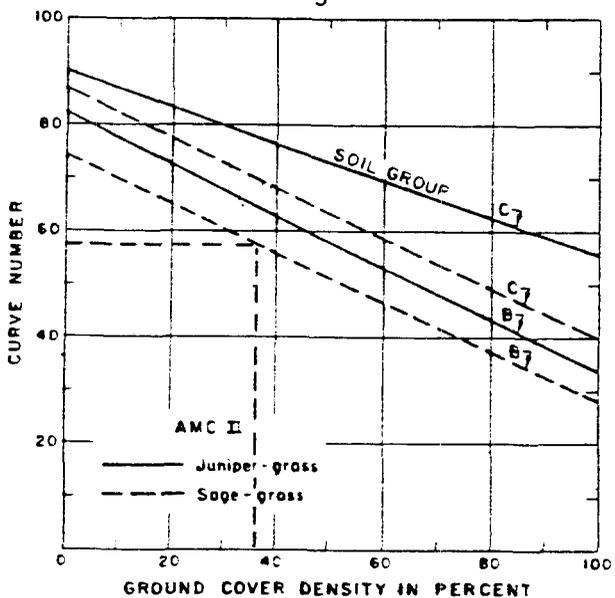
=====
DISTRIBUTION = SCS TYPE B           RUNOFF AREA = .0044 SQ. MILES
RAINFALL DEPTH = 2.25 INCHES       RUNOFF CURVE NO. = 57
STORM DURATION = 24 HOURS          TIME OF CONCENTRATION = .12 HRS.
=====
  
```

OUTPUT SUMMARY:

```

=====
TOTAL RUNOFF DEPTH = .066 IN.       TIME TO PEAK = 21.996 HOURS
INITIAL ABSTRACTION = 1.509 IN.    RUNOFF VOLUME CHECK = .066 IN.
PEAK FLOW = .02 CFS.
=====
  
```

Fig. 3



Graph for estimating runoff curve numbers of forest-range complexes in western United States: juniper-grass and sage-grass complexes.

From SCS National Engineering Handbook  
Section 4

TRUCK RUNAWAY ROAD  
DRAINAGE DITCH CAPACITY ESTIMATE

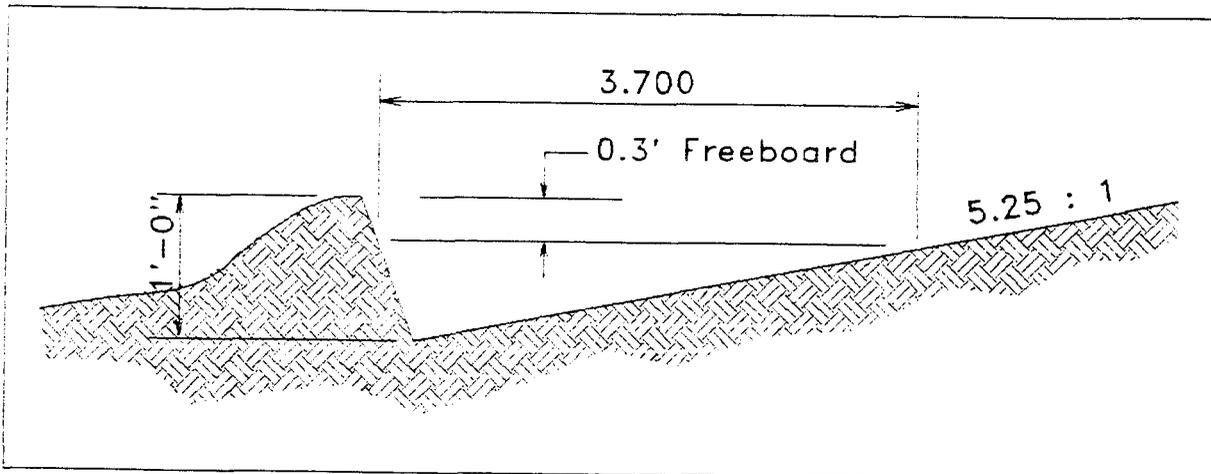


Fig. 4 Typical Ditch Cross Section 3/4" = 1'

A = CROSS SECTIONAL AREA OF DITCH (sq.ft.)

$$A := \frac{0.7 \cdot 3.7}{2} \qquad A = 1.3 \quad \text{sq.ft.}$$

P = WETTED PERIMETER OF DITCH (ft.)

$$P := 0.73 + 3.5 \qquad P = 4.23 \quad \text{ft.}$$

R = HYDRAULIC RADIUS (ft.)

$$R := \frac{A}{P} \qquad R = 0.31 \quad \text{ft.}$$

n = ROUGHNESS COEFF.

$$n := 0.025 \qquad n = 0.025$$

S = SLOPE OF DITCH (%)

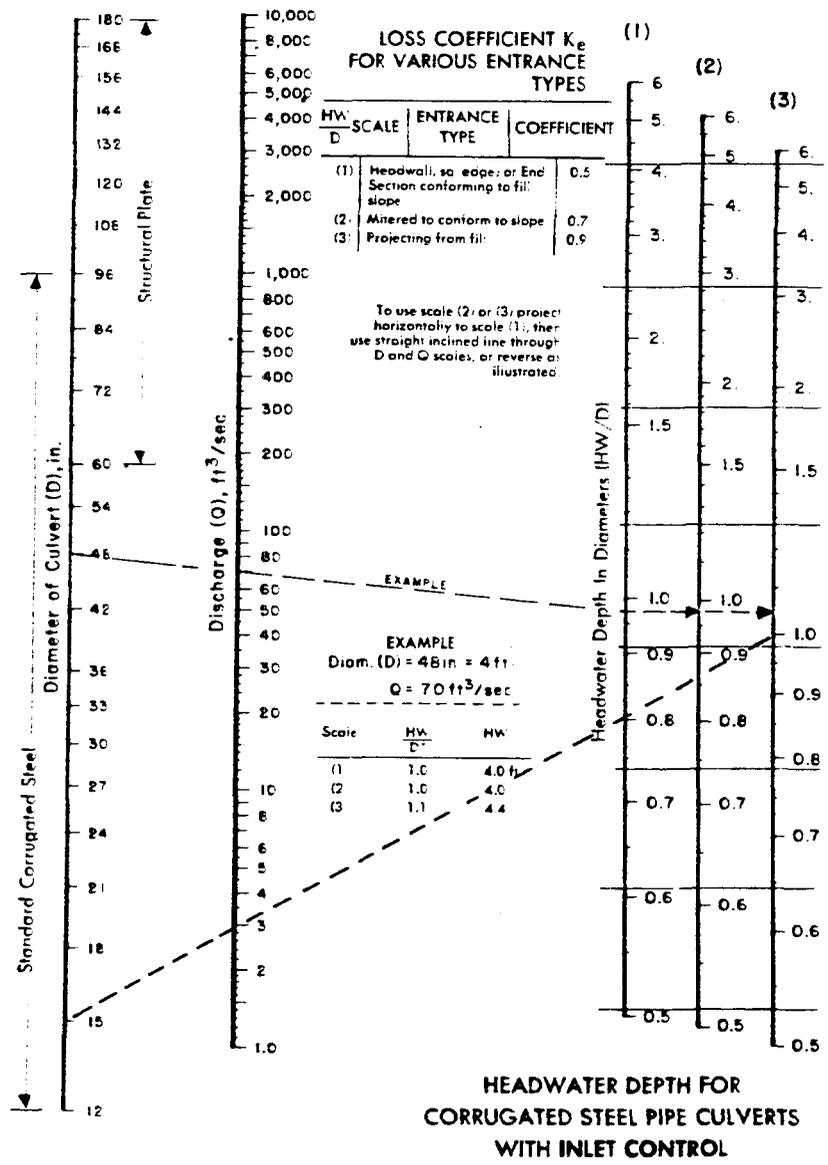
$$S := 0.04 \qquad S = 4 \%$$

V = VELOCITY OF FLOW (ft./sec.)

$$V := \frac{1.486}{n} R^{0.67} S^{0.5} \qquad V = 5.38 \quad \text{ft./Sec.}$$

Q = CAPACITY OF DITCH (cu.ft./sec.)

$$Q := V \cdot A \qquad Q = 6.97 \quad \text{C.F.S.}$$



FHWA HEC 5

Fig. 5 Nomograph shows a 15" Dia. culvert will be adequate.

waste has been associated with the development of portal entries or vent-shafts and in each case the waste has been used in the construction of pads at the portals etc. or used within the mine to fill low areas. Due to the limited remaining coal resources, U. S. Fuel is not proposing any new underground development which would produce underground development waste. Based on the fact that topographic, physiographic, geomorphic, geologic, pedogenic and hydrologic conditions vary greatly from one location to another within the bounds of the permit area and would also vary with the type of underground development which may be desired; providing general, non-site specific and non-project specific underground waste development plans at this point would not be in the best interest of DOGM or U. S. Fuel.

Occasional rock may be brought out through material handling and trash collection activities. Because of practical considerations, i.e. small quantities generated, distance from portals to the refuse pile and required equipment, temporary refuse storage is necessary. Temporary storage locations are utilized at each mine site. Refer to Plates III-8 and III-9.

Temporary storage locations are within the disturbed areas at the mine sites. Drainage from the site is contained by sediment ponds. The refuse is not toxic, hazardous or acid producing.

Based on the characteristics, handling and disposal of various waste products, the impact on the environment is minimal. The slurry refuse does not go into the hydrologic system. The refuse material is deposited in two foot minimum lifts and compacted to eliminate ignition.

Several non-coal waste disposal sites (for materials other than slurry or refuse) have been established. The plan and approval for these sites are located in Appendix III-11.

#### Refueling Station Storage and Containment

Fuel storage tanks (exceeding 500 gallons) are located near the equipment maintenance shop. One 10,000 gallon diesel and a 500 gallon unleaded gas tank are located inside of a concrete storage structure designed for total containment of the tank contents. This site is covered in U.S. Fuel's SPCC Plan which is on file in the engineering office.

ACT/007/011 #7  
Rick Summers #7

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527  
801-637-2252  
TELEX 453-123

**RECEIVED**  
DEC 08 1988

December 5, 1988

DIVISION OF  
OIL, GAS & MINING

Division of Oil, Gas and Mining  
355 West North Temple, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Division:

United States Fuel Company is hereby notifying the Division of Oil, Gas and Mining of a noncompliant discharge sample from Discharge Point D001. A sample was taken on November 14, 1988 at 11:15 a.m. Only one parameter, oil and grease, was out of compliance. The value listed on the lab analysis report for oil and grease is 15 mg/l. The current limit is 10 mg/l. No apparent reason for exceeding the oil and grease limit was identified. We do not believe this will be a recurrent problem.

Sincerely,



Jean Semborski  
Environmental Coordinator

JS:lj

pc: E. Gardiner  
W.C. Vrettos  
EPA  
Utah Bureau of Water Pollution Control

001



File AG/007/011  
#7

**RECEIVED**  
NOV 04 1988

DIVISION OF  
OIL, GAS & MINING

WATER MONITORING REPORT

3RD QUARTER - 1988

UNITED STATES FUEL COMPANY  
HIAWATHA , UTAH 84527

STREAM MONITORING REPORT

\* SEE ATTACHED LAB SHEET

EFFLUENT CHARACTERISTICS	ST-1			ST-2		
	JULY	AUG	SEPT*	JULY	AUG	SEPT*
Flow Rate G.P.M.	72	72	72			90
Air Temperature °F	58	68	55			61
Water Temperature °F	59	58	54			47
Alkalinity, total mg/l CaCO <sub>3</sub>	296	300	302	196	202	218
Alkalinity, bicarbonate "	296	300	302	196	202	218
Alkalinity, carbonate "	0	0	0	0	0	0
Boron, dissolved mg/l						<.01
Calcium, dissolved mg/l	133	123	120	44	56	58
Chloride mg/l	13	13	13	2	2	2
Conductivity mg/l	1195	1255	1299	407	445	473
Fluoride mg/l						.2
Magnesium, dissolved mg/l	119	105	127	27	29	32
Nitrogen, ammonia mg/l						<.02
Nitrogen, nitrate mg/l						<.02
Nitrogen, nitrite mg/l						<.01
Nitrogen, nitrate nitrite mg/l						<.02
Oil and Grease mg/l	<1	<1	<1	<1	<1	<1
pH units	8.0	8.3	8.2	8.2	8.7	8.4
Phosphorus, total mg/l						<.01
Potassium, dissolved mg/l	5	6	7	1	1	1
Sodium, dissolved mg/l	10	10	12	3	4	3
Sulfate mg/l	504	502	490	31	33	47
Solids, total dissolved mg/l	1042	1008	996	246	256	284
Solids, total suspended mg/l	24	18	26	6	<2	2
Solids, total volatile mg/l						
Aluminum, dissolved mg/l						<.05
Arsenic, dissolved mg/l						.001
Barium, dissolved mg/l						.04
Cadmium, dissolved mg/l						<.005
Chromium, dissolved mg/l						<.01
Copper, dissolved mg/l						<.01
Iron, dissolved mg/l	.08	.06	.14	<.02	<.02	.03
Lead, TOTAL mg/l						<.02
Manganese, TOTAL mg/l						<.01
Mercury, dissolved mg/l						<.0001
Selenium, dissolved mg/l						<.001

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880

Sample ID: ST1-75  
Sample Date Time: 09/20/88 15:35

Lab No. : 88-WI/05409  
Date Received: 09/26/88

Parameters

Acidity as CaCO3	0	mg/l
Alkalinity as CaCO3	302.	mg/l
Bicarbonate as CaCO3	302	mg/l
Boron, dissolved	.11	mg/l
Calcium, dissolved	120.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	13.	mg/l
Fluoride	.3	mg/l
Hardness as CaCO3	821.	mg/l
Magnesium, dissolved	127.	mg/l
Nitrogen, ammonia	.02	mg/l
Nitrate as N, dissolved	.23	mg/l
Nitrate/Nitrite as N	.23	mg/l
Nitrite as N, dissolved	-.02	mg/l
Oil and Grease	-1.	mg/l
Hydroxide as CaCO3	0	mg/l
Phosphorus, total	-.01	mg/l
Potassium, dissolved	7.	mg/l
SAR in water	.18	
Sodium, dissolved	12.	mg/l
Sulfate	490.	mg/l
Sulfide as S	.10	mg/l
Cations (sum)	17.12	meq/l
Anions (sum)	16.72	meq/l
Cation-Anion Balance	1.18	%
Solids, total dissolved	996.	mg/l
Solids, total suspended	26.	mg/l
Solids, settleable	-.1	ml/l/hr
Aluminum, total	.36	mg/l
Arsenic, total	-.001	mg/l
Barium, total	-.01	mg/l
Cadmium, total	-.005	mg/l
Chromium, total	-.01	mg/l
Copper, total	-.01	mg/l
Iron, dissolved	.14	mg/l
Iron, total	.63	mg/l
Lead, total	-.02	mg/l
Manganese, total	.04	mg/l
Mercury, total	.0006	mg/l
Molybdenum, total	-.05	mg/l
Nickel, total	-.02	mg/l
Selenium, total	.002	mg/l
Zinc, total	-.01	mg/l

Remarks: Lab Filtering Required on "GREEN" Bottles #5409-13

Note: Negative sign "-" denotes that the value is less than "<"

*Ralph V. Poulsen* /S.A.  
Ralph V. Poulsen, Laboratory Director

Client : United States Fuel Company  
 Address : P.O. Box A  
 Hiawatha, Utah 84527  
 Attn. : Ms. Jean Semborski  
 P.O. No.: H-17880

Sample ID: ST2-49  
 Sample Date Time: 09/20/88 13:15

Lab No. : 88-W1/05275  
 Date Received: 09/21/88

Parameters

Acidity as CaCO3	0	mg/l
Alkalinity as CaCO3	218.	mg/l
Bicarbonate as CaCO3	218	mg/l
Boron, dissolved	-.01	mg/l
Calcium, dissolved	58.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	2.	mg/l
Fluoride	.2	mg/l
Hardness as CaCO3	276.	mg/l
Magnesium, dissolved	32.	mg/l
Nitrogen, ammonia	-.02	mg/l
Nitrate as N, dissolved	-.02	mg/l
Nitrate/Nitrite as N	-.02	mg/l
Nitrite as N, dissolved	-.01	mg/l
Oil and Grease	-1.	mg/l
Hydroxide as CaCO3	0	mg/l
Phosphorus, total	-.01	mg/l
Potassium, dissolved	1.	mg/l
SAR in water	.08	
Sodium, dissolved	3.	mg/l
Sulfate	47.	mg/l
Sulfide as S	.01	mg/l
Cations (sum)	5.68	meq/l
Anions (sum)	5.40	meq/l
Cation-Anion Balance	2.53	%
Solids, total dissolved	284.	mg/l
Solids, total suspended	2.	mg/l
Solids, settleable	-.1	ml/l/hr
Aluminum, total	-.05	mg/l
Arsenic, total	.001	mg/l
Barium, total	.04	mg/l
Cadmium, total	-.005	mg/l
Chromium, total	-.01	mg/l
Copper, total	-.01	mg/l
Iron, dissolved	.03	mg/l
Iron, total	.03	mg/l
Lead, total	-.02	mg/l
Manganese, total	-.01	mg/l
Mercury, total	-.0001	mg/l
Molybdenum, total	-.05	mg/l
Nickel, total	-.02	mg/l
Selenium, total	-.001	mg/l
Zinc, total	-.01	mg/l

Remarks:

Note: Negative sign "-" denotes that the value is less than "<"

*Ralph V. Paulsen* / S.H.

Ralph V. Paulsen, Laboratory Director

STREAM MONITORING REPORT

\* SEE ATTACHED LAB SHEET

EFFLUENT CHARACTERISTICS	ST- 2A			ST- 2B		
	JULY	AUG	SEPT**	JULY	AUG	SEPT**
Flow Rate G.P.M.	104	74	89	148	133	89
Air Temperature °F	60	64	60	58	66	59
Water Temperature °F	55	51	47	55	51	49
Alkalinity, total mg/l CaCO <sub>3</sub>	214	224	226	245	245	272
Alkalinity, bicarbonate "	214	224	226	245	245	272
Alkalinity, carbonate "	0	0	0	0	0	0
Boron, dissolved mg/l						
Calcium, dissolved mg/l	49	62	60	56	61	75
Chloride mg/l	2	3	3	6	6	8
Conductivity mg/l	420	506	515	564	708	777
Fluoride mg/l						
Magnesium, dissolved mg/l	30	31	34	45	44	61
Nitrogen, ammonia mg/l						
Nitrogen, nitrate mg/l						
Nitrogen, nitrite mg/l						
Nitrogen, nitrate nitrite mg/l						
Oil and Grease mg/l	<1	<1	<1	<1	<1	<1
pH units	7.9	8.5	8.2	8.1	8.5	8.3
Phosphorus, total mg/l						
Potassium, dissolved mg/l	1	1	1	2	2	3
Sodium, dissolved mg/l	4	5	3	5	6	8
Sulfate mg/l	35	33	45	88	86	165
Solids, total dissolved mg/l	274	278	294	372	384	526
Solids, total suspended mg/l	12	<2	2	16	2	4
Solids, total volatile mg/l						
Aluminum, dissolved mg/l						
Arsenic, dissolved mg/l						
Barium, dissolved mg/l						
Cadmium, dissolved mg/l						
Chromium, dissolved mg/l						
Copper, dissolved mg/l						
Iron, dissolved mg/l	.02	<.02	<.02	.03	.02	.02
Lead, dissolved mg/l						
Manganese, dissolved mg/l						
Mercury, dissolved mg/l						
Selenium, dissolved mg/l						

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880

Sample ID: ST2A-48  
Sample Date Time: 09/20/88 15:00

Lab No. : 88-WI/05274  
Date Received: 09/21/88

Parameters

Acidity as CaCO3	0	mg/l
Alkalinity as CaCO3	226.	mg/l
Bicarbonate as CaCO3	226	mg/l
Boron, dissolved	-.01	mg/l
Calcium, dissolved	60.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	3.	mg/l
Fluoride	.2	mg/l
Hardness as CaCO3	289.	mg/l
Magnesium, dissolved	34.	mg/l
Nitrogen, ammonia	-.02	mg/l
Nitrate as N, dissolved	-.02	mg/l
Nitrate/Nitrite as N	-.02	mg/l
Nitrite as N, dissolved	-.01	mg/l
Oil and Grease	-1.	mg/l
Hydroxide as CaCO3	0	mg/l
Phosphorus, total	-.01	mg/l
Potassium, dissolved	1.	mg/l
SAR in water	.08	
Sodium, dissolved	3.	mg/l
Sulfate	45.	mg/l
Sulfide as S	.01	mg/l
Cations (sum)	5.95	meq/l
Anions (sum)	5.55	meq/l
Cation-Anion Balance	3.48	%
Solids, total dissolved	294.	mg/l
Solids, total suspended	2.	mg/l
Solids, settleable	-.1	ml/l/hr
Aluminum, total	-.05	mg/l
Arsenic, total	.004	mg/l
Barium, total	.05	mg/l
Cadmium, total	-.005	mg/l
Chromium, total	-.01	mg/l
Copper, total	.01	mg/l
Iron, dissolved	-.02	mg/l
Iron, total	.04	mg/l
Lead, total	-.02	mg/l
Manganese, total	-.01	mg/l
Mercury, total	-.0001	mg/l
Molybdenum, total	-.05	mg/l
Nickel, total	-.02	mg/l
Selenium, total	-.001	mg/l
Zinc, total	-.01	mg/l

Remarks:

Note: Negative sign "-" denotes that the value is less than "<"

*Ralph V. Paulson* /S.H.  
Ralph V. Paulson, Laboratory Director

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880

Sample ID: ST28-74  
Sample Date Time: 09/20/88 15:30

Lab No. : 88-WI/05273  
Date Received: 09/21/88

Parameters

Acidity as CaCO3	0	mg/l
Alkalinity as CaCO3	272.	mg/l
Bicarbonate as CaCO3	272	mg/l
Boron, dissolved	.01	mg/l
Calcium, dissolved	75.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	8.	mg/l
Fluoride	.2	mg/l
Hardness as CaCO3	438.	mg/l
Magnesium, dissolved	61.	mg/l
Nitrogen, ammonia	.02	mg/l
Nitrate as N, dissolved	-.02	mg/l
Nitrate/Nitrite as N	-.02	mg/l
Nitrite as N, dissolved	-.01	mg/l
Oil and Grease	-1.	mg/l
Hydroxide as CaCO3	0	mg/l
Phosphorus, total	-.01	mg/l
Potassium, dissolved	3.	mg/l
SAR in water	.17	
Sodium, dissolved	8.	mg/l
Sulfate	165.	mg/l
Sulfide as S	.01	mg/l
Cations (sum)	9.13	meq/l
Anions (sum)	9.13	meq/l
Cation-Anion Balance	.27	%
Solids, total dissolved	526.	mg/l
Solids, total suspended	4.	mg/l
Solids, settleable	-.1	ml/l/hr
Aluminum, total	.09	mg/l
Arsenic, total	.002	mg/l
Barium, total	.04	mg/l
Cadmium, total	-.005	mg/l
Chromium, total	-.01	mg/l
Copper, total	.01	mg/l
Iron, dissolved	.02	mg/l
Iron, total	.08	mg/l
Lead, total	-.02	mg/l
Manganese, total	.01	mg/l
Mercury, total	-.0001	mg/l
Molybdenum, total	-.05	mg/l
Nickel, total	-.02	mg/l
Selenium, total	-.001	mg/l
Zinc, total	-.01	mg/l

Remarks: Lab Filtering Required on "GREEN" Bottles 5273-77

Note: Negative sign "-" denotes that the value is less than "<"

*Ralph V. Paulsen* /S.H.

Ralph V. Paulsen, Laboratory Director

STREAM MONITORING REPORT

\* SEE ATTACHED LAB SHEET

EFFLUENT CHARACTERISTICS	ST- 3			ST- 3A		
	JULY	AUG	SEPT*	JULY	AUG	SEPT
Flow Rate G.P.M.	DRY	21	21	DRY	DRY	DRY
Air Temperature °F		63	63			
Water Temperature °F		51	48			
Alkalinity, total mg/l CaCO <sub>3</sub>		310	314			
Alkalinity, bicarbonate "		310	314			
Alkalinity, carbonate "		0	0			
Boron, dissolved mg/l						
Calcium, dissolved mg/l		158	146			
Chloride mg/l		393	372			
Conductivity mg/l		2390	2360			
Fluoride mg/l						
Magnesium, dissolved mg/l		170	174			
Nitrogen, ammonia mg/l						
Nitrogen, nitrate mg/l						
Nitrogen, nitrite mg/l						
Nitrogen, nitrate nitrite mg/l						
Oil and Grease mg/l		<1	<1			
pH units		8.3	8.2			
Phosphorus, total mg/l						
Potassium, dissolved mg/l		8	9			
Sodium, dissolved mg/l		153	167			
Sulfate mg/l		525	508			
Solids, total dissolved mg/l		1748	1718			
Solids, total suspended mg/l		8	6			
Solids, total volatile mg/l						
Aluminum, dissolved mg/l						
Arsenic, dissolved mg/l						
Barium, dissolved mg/l						
Cadmium, dissolved mg/l						
Chromium, dissolved mg/l						
Copper, dissolved mg/l						
Iron, dissolved mg/l		.03	.14			
Lead, dissolved mg/l						
Manganese, dissolved mg/l						
Mercury, dissolved mg/l						
Selenium, dissolved mg/l						

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880

Sample ID: ST3-75  
Sample Date Time: 09/20/88 16:00

Lab No. : 88-WI/05410  
Date Received: 09/26/88

Parameters

Acidity as CaCO <sub>3</sub>	0	mg/l
Alkalinity as CaCO <sub>3</sub>	314.	mg/l
Bicarbonate as CaCO <sub>3</sub>	314	mg/l
Boron, dissolved	.18	mg/l
Calcium, dissolved	146.	mg/l
Carbonate as CaCO <sub>3</sub>	0	mg/l
Chloride	372.	mg/l
Fluoride	.3	mg/l
Hardness as CaCO <sub>3</sub>	1078.	mg/l
Magnesium, dissolved	174.	mg/l
Nitrogen, ammonia	-.02	mg/l
Nitrate as N, dissolved	.19	mg/l
Nitrate/Nitrite as N	.19	mg/l
Nitrite as N, dissolved	-.02	mg/l
Oil and Grease	-1.	mg/l
Hydroxide as CaCO <sub>3</sub>	0	mg/l
Phosphorus, total	-.01	mg/l
Potassium, dissolved	9.	mg/l
SAR in water	2.24	
Sodium, dissolved	167.	mg/l
Sulfate	508.	mg/l
Sulfide as S	.04	mg/l
Cations (sum)	29.15	meq/l
Anions (sum)	27.39	meq/l
Cation-Anion Balance	3.11	%
Solids, total dissolved	1718.	mg/l
Solids, total suspended	6.	mg/l
Solids, settleable	-.1	ml/l/hr
Aluminum, total	.11	mg/l
Arsenic, total	-.001	mg/l
Barium, total	-.01	mg/l
Cadmium, total	-.005	mg/l
Chromium, total	-.01	mg/l
Copper, total	-.01	mg/l
Iron, dissolved	.14	mg/l
Iron, total	.31	mg/l
Lead, total	-.02	mg/l
Manganese, total	.03	mg/l
Mercury, total	-.0001	mg/l
Molybdenum, total	-.05	mg/l
Nickel, total	.02	mg/l
Selenium, total	-.001	mg/l
Zinc, total	-.01	mg/l

Remarks:

Note: Negative sign "-" denotes that the value is less than "<"

*Ralph V. Poulsen* S.H.  
Ralph V. Poulsen, Laboratory Director

STREAM MONITORING REPORT

\* SEE ATTACHED LAB SHEET

EFFLUENT CHARACTERISTICS	ST- 3B			ST- 4		
	JULY	AUG	SEPT*	JULY	AUG	SEPT
Flow Rate G.P.M.	DRY	DRY	3	DRY	DRY	DRY
Air Temperature °F			55			
Water Temperature °F			49			
Alkalinity, total mg/l CaCO <sub>3</sub>			304			
Alkalinity, bicarbonate "			304			
Alkalinity, carbonate "			0			
Boron, dissolved mg/l						
Calcium, dissolved mg/l			187			
Chloride mg/l			868			
Conductivity mg/l			360			
Fluoride mg/l						
Magnesium, dissolved mg/l			139			
Nitrogen, ammonia mg/l						
Nitrogen, nitrate mg/l						
Nitrogen, nitrite mg/l						
Nitrogen, nitrate nitrite mg/l						
Oil and Grease mg/l			<1			
pH units			8.2			
Phosphorus, total mg/l						
Potassium, dissolved mg/l			10			
Sodium, dissolved mg/l			481			
Sulfate mg/l			300			
Solids, total dissolved mg/l			2600			
Solids, total suspended mg/l			18			
Solids, total volatile mg/l						
Aluminum, dissolved mg/l						
Arsenic, dissolved mg/l						
Barium, dissolved mg/l						
Cadmium, dissolved mg/l						
Chromium, dissolved mg/l						
Copper, dissolved mg/l						
Iron, dissolved mg/l			.75			
Lead, dissolved mg/l						
Manganese, dissolved mg/l						
Mercury, dissolved mg/l						
Selenium, dissolved mg/l						

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880

Sample ID: ST3B-53  
Sample Date Time: 09/21/88 11:30

Lab No. : 88-WI/05492  
Date Received: 09/27/88

Parameters

Acidity as CaCO3	0	mg/l
Alkalinity as CaCO3	304.	mg/l
Bicarbonate as CaCO3	304	mg/l
Boron, dissolved	.22	mg/l
Calcium, dissolved	197.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	868.	mg/l
Fluoride	.5	mg/l
Hardness as CaCO3	1037.	mg/l
Magnesium, dissolved	139.	mg/l
Nitrogen, ammonia	.20	mg/l
Nitrate as N, dissolved	.13	mg/l
Nitrate/Nitrite as N	.13	mg/l
Nitrite as N, dissolved	-.02	mg/l
Oil and Grease	-1.	mg/l
Hydroxide as CaCO3	0	mg/l
Phosphorus, total	.16	mg/l
Potassium, dissolved	10.	mg/l
SAR in water	6.57	
Sodium, dissolved	481.	mg/l
Sulfate	300.	mg/l
Sulfide as S	.01	mg/l
Cations (sum)	42.17	meq/l
Anions (sum)	36.68	meq/l
Cation-Anion Balance	6.96	%
Solids, total dissolved	2600.	mg/l
Solids, total suspended	18.	mg/l
Solids, settleable	-.1	ml/l/hr
Aluminum, total	.30	mg/l
Arsenic, total	-.001	mg/l
Barium, total	.09	mg/l
Cadmium, total	-.005	mg/l
Chromium, total	-.01	mg/l
Copper, total	.01	mg/l
Iron, dissolved	.13	mg/l
Iron, total	.75	mg/l
Lead, total	-.02	mg/l
Mercury, total	-.0001	mg/l
Molybdenum, total	-.05	mg/l
Nickel, total	-.02	mg/l
Selenium, total	-.001	mg/l
Zinc, total	.01	mg/l

Remarks: Cations & Anions Retested To Verify CAB

Note: Negative sign "-" denotes that the value is less than "<"

Ralph U. Poulsen, Laboratory Director

*Ralph U. Poulsen* /s.d.

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTICS	ST- 4A			ST- 4B		
	JULY	AUG	SEPT	JULY	AUG	SEPT
Flow Rate G.P.M.	DRY	DRY	DRY	DRY	DRY	DRY
Air Temperature °F						
Water Temperature °F						
Alkalinity, total mg/l CaCO <sub>3</sub>						
Alkalinity, bicarbonate "						
Alkalinity, carbonate "						
Boron, dissolved mg/l						
Calcium, dissolved mg/l						
Chloride mg/l						
Conductivity mg/l						
Fluoride mg/l						
Magnesium, dissolved mg/l						
Nitrogen, ammonia mg/l						
Nitrogen, nitrate mg/l						
Nitrogen, nitrite mg/l						
Nitrogen, nitrate nitrite mg/l						
Oil and Grease mg/l						
pH units						
Phosphorus, total mg/l						
Potassium, dissolved mg/l						
Sodium, dissolved mg/l						
Sulfate mg/l						
Solids, total dissolved mg/l						
Solids, total suspended mg/l						
Solids, total volatile mg/l						
Aluminum, dissolved mg/l						
Arsenic, dissolved mg/l						
Barium, dissolved mg/l						
Cadmium, dissolved mg/l						
Chromium, dissolved mg/l						
Copper, dissolved mg/l						
Iron, dissolved mg/l						
Lead, dissolved mg/l						
Manganese, dissolved mg/l						
Mercury, dissolved mg/l						
Selenium, dissolved mg/l						

STREAM MONITORING REPORT

\* SEE ATTACHED LAB SHEET

EFFLUENT CHARACTERISTICS	ST-5			ST-6		
	JULY	AUG	SEPT*	JULY	AUG	SEPT*
Flow Rate G.P.M.	292	292	215	118	133	148
Air Temperature °F	85	70	60	-	74	57
Water Temperature °F	60	58	51	-	55	51
Alkalinity, total mg/l CaCO <sub>3</sub>	239	234	250	212	218	216
Alkalinity, bicarbonate "	239	234	250	212	218	216
Alkalinity, carbonate "	0	0	0	0	0	0
Boron, dissolved mg/l						
Calcium, dissolved mg/l	82	90	114	60	66	84
Chloride mg/l	26	29	43	8	7	8
Conductivity mg/l	904	829	1250	740	796	903
Fluoride mg/l						
Magnesium, dissolved mg/l	81	93	111	70	69	81
Nitrogen, ammonia mg/l						
Nitrogen, nitrate mg/l						
Nitrogen, nitrite mg/l						
Nitrogen, nitrate nitrite mg/l						
Oil and Grease mg/l	<1	<1	<1	<1	<1	1
pH units	8.1	8.5	8.3	8.4	8.7	8.5
Phosphorus, total mg/l						
Potassium, dissolved mg/l	4	5	5	3	3	4
Sodium, dissolved mg/l	15	20	26	11	12	12
Sulfate mg/l	319	340	401	239	230	278
Solids, total dissolved mg/l	754	732	904	556	526	620
Solids, total suspended mg/l	2	6	6	6	12	74
Solids, total volatile mg/l						
Aluminum, dissolved mg/l						
Arsenic, dissolved mg/l						
Barium, dissolved mg/l						
Cadmium, dissolved mg/l						
Chromium, dissolved mg/l						
Copper, dissolved mg/l						
Iron, dissolved mg/l	.04	.05	.05	<.02	.06	.03
Lead, dissolved mg/l						
Manganese, dissolved mg/l						
Mercury, dissolved mg/l						
Selenium, dissolved mg/l						

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880

Sample ID: ST5-91  
Sample Date Time: 09/21/88 11:00

Lab No. : 88-WI/05490  
Date Received: 09/27/88

Parameters

Acidity as CaCO3	0	mg/l
Alkalinity as CaCO3	250.	mg/l
Bicarbonate as CaCO3	250	mg/l
Boron, dissolved	.12	mg/l
Calcium, dissolved	114.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	43.	mg/l
Fluoride	.2	mg/l
Hardness as CaCO3	740.	mg/l
Magnesium, dissolved	111.	mg/l
Nitrogen, ammonia	-.02	mg/l
Nitrate as N, dissolved	.93	mg/l
Nitrate/Nitrite as N	.93	mg/l
Nitrite as N, dissolved	-.02	mg/l
Dil and Grease	-1.	mg/l
Hydroxide as CaCO3	0	mg/l
Phosphorus, total	-.01	mg/l
Potassium, dissolved	5.	mg/l
SAR in water	.42	
Sodium, dissolved	26.	mg/l
Sulfate	401.	mg/l
Sulfide as S	.02	mg/l
Cations (sum)	16.08	meq/l
Anions (sum)	14.63	meq/l
Cation-Anion Balance	4.72	%
Solids, total dissolved	904.	mg/l
Solids, total suspended	6.	mg/l
Solids, settleable	-.1	ml/l/hr
Aluminum, total	.14	mg/l
Arsenic, total	-.001	mg/l
Barium, total	.02	mg/l
Cadmium, total	-.005	mg/l
Chromium, total	-.01	mg/l
Copper, total	.03	mg/l
Iron, dissolved	.05	mg/l
Iron, total	.16	mg/l
Lead, total	-.02	mg/l
Mercury, total	-.0001	mg/l
Molybdenum, total	-.05	mg/l
Nickel, total	-.02	mg/l
Selenium, total	-.001	mg/l
Zinc, total	.02	mg/l

Remarks:

Note: Negative sign "-" denotes that the value is less than "<"

Ralph U. Poulsen, Laboratory Director

*Ralph U. Poulsen / S.H.*

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880

Sample ID: ST6-94  
Sample Date Time: 09/21/88 10:30

Lab No. : 88-WI/05491  
Date Received: 09/27/88

Parameters

Acidity as CaCO3	0	mg/l
Alkalinity as CaCO3	216.	mg/l
Bicarbonate as CaCO3	216	mg/l
Boron, dissolved	.06	mg/l
Calcium, dissolved	84.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	8.	mg/l
Fluoride	.2	mg/l
Hardness as CaCO3	542.	mg/l
Magnesium, dissolved	81.	mg/l
Nitrogen, ammonia	-.02	mg/l
Nitrate as N, dissolved	-.02	mg/l
Nitrate/Nitrite as N	-.02	mg/l
Nitrite as N, dissolved	-.02	mg/l
Oil and Grease	1.	mg/l
Hydroxide as CaCO3	0	mg/l
Phosphorus, total	.05	mg/l
Potassium, dissolved	4.	mg/l
SAR in water	.23	
Sodium, dissolved	12.	mg/l
Sulfate	278.	mg/l
Sulfide as S	.58	mg/l
Cations (sum)	11.47	meq/l
Anions (sum)	10.38	meq/l
Cation-Anion Balance	4.99	%
Solids, total dissolved	620.	mg/l
Solids, total suspended	74.	mg/l
Solids, settleable	-.1	ml/l/hr
Aluminum, total	1.22	mg/l
Arsenic, total	-.001	mg/l
Barium, total	.03	mg/l
Cadmium, total	-.005	mg/l
Chromium, total	.01	mg/l
Copper, total	-.01	mg/l
Iron, dissolved	.03	mg/l
Iron, total	1.26	mg/l
Lead, total	-.02	mg/l
Mercury, total	-.0001	mg/l
Molybdenum, total	-.05	mg/l
Nickel, total	-.02	mg/l
Selenium, total	-.001	mg/l
Zinc, total	.01	mg/l

Remarks:

Note: Negative sign "-" denotes that the value is less than "<"

Ralph U. Poulsen, Laboratory Director

*Ralph U. Poulsen / S.H.*

STREAM MONITORING REPORT

\* SEE ATTACHED LAB SHEET

EFFLUENT CHARACTERISTICS	ST-6A			ST-7		
	JULY	AUGO	SEPT			
Flow Rate G.P.M.			140	DISCONTINUED		
Air Temperature °F			57			
Water Temperature °F			45			
Alkalinity, total mg/l CaCO <sub>3</sub>	233	226	258			
Alkalinity, bicarbonate "	233	226	258			
Alkalinity, carbonate "	0	0	0			
Boron, dissolved mg/l						
Calcium, dissolved mg/l	54	54	67			
Chloride mg/l	4	4	4			
Conductivity mg/l	548	625	822			
Fluoride mg/l						
Magnesium, dissolved mg/l	44	51	67			
Nitrogen, ammonia mg/l						
Nitrogen, nitrate mg/l						
Nitrogen, nitrite mg/l						
Nitrogen, nitrate nitrite mg/l						
Oil and Grease mg/l	<1	<1	<1			
pH units	8.2	8.7	8.4			
Phosphorus, total mg/l						
Potassium, dissolved mg/l	1	2	3			
Sodium, dissolved mg/l	7	7	7			
Sulfate mg/l	103	111	148			
Solids, total dissolved mg/l	370	370	466			
Solids, total suspended mg/l	<2	<2	24			
Solids, total volatile mg/l						
Aluminum, dissolved mg/l						
Arsenic, dissolved mg/l						
Barium, dissolved mg/l						
Cadmium, dissolved mg/l						
Chromium, dissolved mg/l						
Copper, dissolved mg/l						
Iron, dissolved mg/l	.02	.04	.08			
Lead, dissolved mg/l						
Manganese, dissolved mg/l						
Mercury, dissolved mg/l						
Selenium, dissolved mg/l						

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880

Sample ID: ST6A-75  
Sample Date Time: 09/21/88 10:15

Lab No. : 88-WI/05411  
Date Received: 09/26/88

Parameters

Acidity as CaCO3	0	mg/l
Alkalinity as CaCO3	258.	mg/l
Bicarbonate as CaCO3	258	mg/l
Boron, dissolved	-.02	mg/l
Calcium, dissolved	67.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	4.	mg/l
Fluoride	.2	mg/l
Hardness as CaCO3	442.	mg/l
Magnesium, dissolved	67.	mg/l
Nitrogen, ammonia	-.02	mg/l
Nitrate as N, dissolved	.05	mg/l
Nitrate/Nitrite as N	.03	mg/l
Nitrite as N, dissolved	-.02	mg/l
Oil and Grease	-1.	mg/l
Hydroxide as CaCO3	0	mg/l
Phosphorus, total	-.01	mg/l
Potassium, dissolved	3.	mg/l
SAR in water	.15	
Sodium, dissolved	7.	mg/l
Sulfate	148.	mg/l
Sulfide as S	.23	mg/l
Cations (sum)	9.23	meq/l
Anions (sum)	8.38	meq/l
Cation-Anion Balance	4.83	%
Solids, total dissolved	466.	mg/l
Solids, total suspended	24.	mg/l
Solids, settleable	-.1	ml/l/hr
Aluminum, total	.45	mg/l
Arsenic, total	.001	mg/l
Barium, total	-.01	mg/l
Cadmium, total	-.005	mg/l
Chromium, total	-.01	mg/l
Copper, total	-.01	mg/l
Iron, dissolved	.08	mg/l
Iron, total	.38	mg/l
Lead, total	-.02	mg/l
Manganese, total	.01	mg/l
Mercury, total	-.0001	mg/l
Molybdenum, total	-.05	mg/l
Nickel, total	-.02	mg/l
Selenium, total	-.001	mg/l
Zinc, total	-.01	mg/l

Remarks:

Note: Negative sign "-" denotes that the value is less than "<"

*Ralph V. Poulsen* /S.H.  
Ralph V. Poulsen, Laboratory Director

SPRING MONITORING REPORT

2ND Quarter

EFFLUENT CHARACTERISTIC							
		SP1	SP2	SP4	SP5	SP6	SP8
Flow Rate	g.p.m.	2.6	4.0	19.5	8	14	1.2
Air Temperature	°F	62	70	64	68	72	72
Water Temperature	°F	50	50	48	42	54	50
Alkalinity, Total	mg/l	159	169	234	240	171	294
Alkalinity, Bicarb.	mg/l	159	231	208	296	218	294
Alkalinity, Carbonate	mg/l	0	0	0	0	0	0
Chloride	mg/l	3	2	1	3	1	3
Coliform, Fecal	MPN/100 ml						
Coliform, Total	MPN/100 ml						
Conductivity	umhos/cm	298	412	470	520	415	605
Fluoride	mg/l						
Hardness, Total	mg/l CaCO <sub>3</sub>						
Nitrogen, Ammonia	mg/l						
Nitrogen, Nitrate	mg/l						
Oil and Grease	mg/l						
pH	units	6.9	7.6	8.0	7.6	8.2	7.3
Phosphorus, Ortho	mg/l						
Phosphorus, Total	mg/l						
Solids, Total Diss.	mg/l	208	260	284	346	250	384
Solids, Total Susp.	mg/l	<2	90	20	<2	<2	2
Sulfate	mg/l	14	6	8	31	8	49
Sulfide	mg/l						
Turbidity	mg/l						
Total Cations	mg/l						
Total Anions	meq/l						
Calcium	mg/l	49	54	61	70	49	58
Iron, Dissolved	mg/l	<.02	.03	<.02	<.02	<.02	<.02
Magnesium	mg/l	10	14	20	26	16	39
Manganese	mg/l						
Potassium	mg/l	1	1	<1	<1	1	1
Sodium	mg/l	4	3	3	6	2	6

SPRING MONITORING REPORT

2 ND Quarter

EFFLUENT CHARACTERISTIC		SP9	SP11	SP12	SP13	SP14
Flow Rate	g.p.m.	3	4.7	.8	1.0	7.2
Air Temperature	°F	78	67	70	68	54
Water Temperature	°F	47	62	42	44	50
Alkalinity, Total	mg/l	173	218	236	351	196
Alkalinity, Bicarb.	mg/l	212	218	280	351	196
Alkalinity, Carbonate	mg/l	0	0	0	0	0
Chloride	mg/l	2	3	2	15	2
Coliform, Fecal	MPN/100 ml					
Coliform, Total	MPN/100 ml					
Conductivity	umhos/cm	365	427	448	1030	304
Fluoride	mg/l					
Hardness, Total	mg/l CaCO <sub>3</sub>					
Nitrogen, Ammonia	mg/l					
Nitrogen, Nitrate	mg/l					
Oil and Grease	mg/l					
pH	units	8.2	8.4	7.6	7.8	7.8
Phosphorus, Ortho	mg/l					
Phosphorus, Total	mg/l					
Solids, Total Diss.	mg/l	224	298	306	830	232
Solids, Total Susp.	mg/l	60	2	8	<2	16
Sulfate	mg/l	8	41	33	294	2
Sulfide	mg/l					
Turbidity	mg/l					
Total Cations	mg/l					
Total Anions	meq/l					
Calcium	mg/l	42	44	57	124	54
Iron, Dissolved	mg/l	.05	<.02	.02	<.02	.02
Magnesium	mg/l	21	34	29	86	17
Manganese	mg/l					
Potassium	mg/l	<1	1	1	3	<1
Sodium	mg/l	3	3	6	11	3

SPRING MONITORING REPORT

3RD Quarter

EFFLUENT CHARACTERISTIC		SP1	SP2	SP4	SP5	SP6	SP8
Flow Rate	g.p.m.		1.1	1.6	3	7.9	1
Air Temperature	°F		55	47	52	53	57
Water Temperature	°F		51	41	45	44	46
Alkalinity, Total	mg/l		172	246	276	198	312
Alkalinity, Bicarb.	mg/l		172	246	276	198	312
Alkalinity, Carbonate	mg/l		0	0	0	0	0
Chloride	mg/l		<1	1	3	<1	3
Coliform, Fecal	MPN/100 ml						
Coliform, Total	MPN/100 ml						
Conductivity	umhos/cm		434	511	606	468	680
Fluoride	mg/l						
Hardness, Total	mg/l CaCO <sub>3</sub>						
Nitrogen, Ammonia	mg/l						
Nitrogen, Nitrate	mg/l						
Oil and Grease	mg/l						
pH	units		8.2	8.0	7.3	8.3	7.6
Phosphorus, Ortho	mg/l						
Phosphorus, Total	mg/l						
Solids, Total Diss.	mg/l		240	282	336	228	392
Solids, Total Susp.	mg/l		148	<2	<2	10	6
Sulfate	mg/l		8	10	33	8	62
Sulfide	mg/l						
Turbidity	mg/l						
Total Cations	mg/l						
Total Anions	meq/l						
Calcium	mg/l		56	69	86	70	79
Iron, Dissolved	mg/l		.02	<.02	<.02	<.02	<.02
Magnesium	mg/l		14	24	27	18	50
Manganese	mg/l						
Potassium	mg/l		<1	<1	1	<1	1
Sodium	mg/l		2	3	6	2	5

DISCONTINUED

SPRING MONITORING REPORT

3RD Quarter

EFFLUENT CHARACTERISTIC		SP9	SP11	SP12	SP13	SP14
Flow Rate	g.p.m.		6.5	NO FLOW	.13	
Air Temperature	°F		59		53	
Water Temperature	°F		57		55	
Alkalinity, Total	mg/l		214		360	
Alkalinity, Bicarb.	mg/l		214		360	
Alkalinity, Carbonate	mg/l		0		0	
Chloride	mg/l		2		18	
Coliform, Fecal	MPN/100 ml					
Coliform, Total	MPN/100 ml					
Conductivity	umhos/cm		386		1224	
Fluoride	mg/l					
Hardness, Total	mg/l CaCO <sub>3</sub>					
Nitrogen, Ammonia	mg/l					
Nitrogen, Nitrate	mg/l					
Oil and Grease	mg/l					
pH	units		8.2		7.5	
Phosphorus, Ortho	mg/l					
Phosphorus, Total	mg/l					
Solids, Total Diss.	mg/l		272		904	
Solids, Total Susp.	mg/l		22		26	
Sulfate	mg/l		39		333	
Sulfide	mg/l					
Turbidity	mg/l					
Total Cations	mg/l					
Total Anions	meq/l					
Calcium	mg/l		50		126	
Iron, Dissolved	mg/l		<.02		.04	
Magnesium	mg/l		35		107	
Manganese	mg/l					
Potassium	mg/l		1		4	
Sodium	mg/l		3		14	

DISCONTINUED

DISCONTINUED

## UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527  
801-637-2252  
TELEX 453-123

RECEIVED  
AUG 3 1988

August 1, 1988

DIVISION OF  
OIL, GAS & MINING

Division of Oil, Gas and Mining  
355 West North Temple, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Division:

United States Fuel Company is hereby notifying the Division of Oil, Gas and Mining of a noncompliant discharge sample from Discharge Point D001. A sample was taken on July 14, 1988 at 10:30. Only one parameter, total dissolved solids, was out of compliance. The total dissolved solids listed on the lab report is 756 Mg./Liter. The current limit is 720 Mg./Liter, the discharge flow recorded at this location when the sample was taken is 628 g.p.m. No specific cause for exceeding this limit has been identified.

Sincerely,

*Jean Semborski*

Jean Semborski  
Environmental Coordinator

JS:lj

pc: E. Gardiner  
EPA  
Utah Bureau of Water Pollution Control

001



ACT/007/011

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AUG 3 1988

DIVISION OF  
OIL, GAS & MINING

WATER MONITORING REPORT  
2ND QUARTER - 1988

UNITED STATES FUEL COMPANY  
HIAWATHA , UTAH 84527

# RECEIVED

AUG 3 1988

## SPRING MONITORING REPORT

2ND Quarter

DIVISION OF  
OIL, GAS & MINING

### EFFLUENT CHARACTERISTIC

		SP1	SP2	SP4	SP5	SP6	SP8
Flow Rate	g.p.m.	2.6	4.0	19.5	8	14	1.2
Air Temperature	°F	62	70	64	68	72	72
Water Temperature	°F	50	50	48	42	54	50
Alkalinity, Total	mg/l	159	169	234	240	171	294
Alkalinity, Bicarb.	mg/l	159	231	208	296	218	294
Alkalinity, Carbonate	mg/l	0	0	0	0	0	0
Chloride	mg/l	3	2	1	3	1	3
Coliform, Fecal	MPN/100 ml						
Coliform, Total	MPN/100 ml						
Conductivity	umhos/cm	298	412	470	520	415	605
Fluoride	mg/l						
Hardness, Total	mg/l CaCO <sub>3</sub>						
Nitrogen, Ammonia	mg/l						
Nitrogen, Nitrate	mg/l						
Oil and Grease	mg/l						
pH	units	6.9	7.6	8.0	7.6	8.2	7.3
Phosphorus, Ortho	mg/l						
Phosphorus, Total	mg/l						
Solids, Total Diss.	mg/l	208	260	284	346	250	384
Solids, Total Susp.	mg/l	<2	90	20	<2	<2	2
Sulfate	mg/l	14	6	8	31	8	49
Sulfide	mg/l						
Turbidity	mg/l						
Total Cations	mg/l						
Total Anions	meq/l						
Calcium	mg/l	49	54	61	70	49	58
Iron, Dissolved	mg/l	<.02	.03	<.02	<.02	<.02	<.02
Magnesium	mg/l	10	14	20	26	16	39
Manganese	mg/l						
Potassium	mg/l	1	1	<1	<1	1	1
Sodium	mg/l	4	3	3	6	2	6

# RECEIVED

AUG 3 1988

## SPRING MONITORING REPORT

2 ND Quarter

DIVISION OF  
OIL, GAS & MINING

### EFFLUENT CHARACTERISTIC

		SP9	SP11	SP12	SP13	SP14
Flow Rate	g.p.m.	3	4.7	.8	1.0	7.2
Air Temperature	°F	78	67	70	68	54
Water Temperature	°F	47	62	42	44	50
Alkalinity, Total	mg/l	173	218	236	351	196
Alkalinity, Bicarb.	mg/l	212	218	280	351	196
Alkalinity, Carbonate	mg/l	0	0	0	0	0
Chloride	mg/l	2	3	2	15	2
Coliform, Fecal	MPN/100 ml					
Coliform, Total	MPN/100 ml					
Conductivity	umhos/cm	365	427	448	1030	304
Fluoride	mg/l					
Hardness, Total	mg/l CaCO <sub>3</sub>					
Nitrogen, Ammonia	mg/l					
Nitrogen, Nitrate	mg/l					
Oil and Grease	mg/l					
pH	units	8.2	8.4	7.6	7.8	7.8
Phosphorus, Ortho	mg/l					
Phosphorus, Total	mg/l					
Solids, Total Diss.	mg/l	224	298	306	830	232
Solids, Total Susp.	mg/l	60	2	8	<2	16
Sulfate	mg/l	8	41	33	294	2
Sulfide	mg/l					
Turbidity	mg/l					
Total Cations	mg/l					
Total Anions	meq/l					
Calcium	mg/l	42	44	57	124	54
Iron, Dissolved	mg/l	.05	<.02	.02	<.02	.02
Magnesium	mg/l	21	34	29	86	17
Manganese	mg/l					
Potassium	mg/l	<1	1	1	3	<1
Sodium	mg/l	3	3	6	11	3

RECEIVED  
JUL 29 1988

DIVISION OF  
OIL, GAS & MINING

WATER MONITORING REPORT

SECOND QUARTER - 1988

UNITED STATES FUEL COMPANY  
HIAWATHA , UTAH 84527

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTICS	ST- 1			ST- 2		
	APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate G.P.M.	7A.	377	103	7A.		
Air Temperature °F		56	63			
Water Temperature °F		46	52			
Acidity mg/l CaCO <sub>3</sub>						
Alkalinity, Total mg/l CaCO <sub>3</sub>		208	267		219	192
Alkalinity, Bicarbonate "		208	267		219	192
Alkalinity, Carbonate "		0	0		0	0
Chloride mg/l CaCO <sub>3</sub>		5	12		3	5
Conductivity uhmos/cm		600	1069		449	408
Fluoride mg/l						
Kjeldahl N mg/l						
Nitrogen, Nitrate mg/l						
Nitrogen, Nitrite mg/l						
Oil & Grease mg/l		<1	1		<1	1
pH units		8.0	8.2		8.5	8.5
Phosphorus, Total mg/l						
Radioactivity: Gross Alpha						
Gross Beta						
Solids, Total Dissolved mg/l		450	876		280	244
Solids, Total Suspended mg/l		24	6		66	<2
Sulfate mg/l		167	379		39	21
Arsenic mg/l						
Cadmium mg/l						
Calcium mg/l		79	113		65	56
Iron mg/l						
Magnesium mg/l		52	96		28	23
Manganese mg/l						
Potassium mg/l		3	6		1	1
Selenium mg/l						
Silica mg/l						
Sodium mg/l		5	9		4	3
Zinc mg/l						
Iron (Diss.) mg/l		.04	.04		.04	<.02
Total Organic Carbon mg/l						

STREAM MONITORING REPORT

\* SEE ATTACHED ANALYSES SHEET

EFFLUENT CHARACTERISTICS	ST- 2A			ST- 2B		
	APRIL	MAY	JUNE	APRIL	MAY	JUNE*
Flow Rate G.P.M.	I.A.	319	292	I.A.	514	389
Air Temperature °F		57	70		56	63
Water Temperature °F		43	50		52	51
Acidity mg/l CaCO <sub>3</sub>						
Alkalinity, Total mg/l CaCO <sub>3</sub>		206	206		235	196
Alkalinity, Bicarbonate "		206	206		235	196
Alkalinity, Carbonate "		0	0		0	0
Chloride mg/l CaCO <sub>3</sub>		3	5		4	4
Conductivity uhmos/cm		464	471		484	529
Fluoride mg/l						
Kjeldahl N mg/l						
Nitrogen, Nitrate mg/l						
Nitrogen, Nitrite mg/l						
Oil & Grease mg/l		<1	1		<1	<1
pH units		8.5	8.4		8.4	8.4
Phosphorus, Total mg/l						
Radioactivity: Gross Alpha						
Gross Beta						
Solids, Total Dissolved mg/l		288	278		332	318
Solids, Total Suspended mg/l		50	2		90	16
Sulfate mg/l		35	23		56	51
Arsenic mg/l						
Cadmium mg/l						
Calcium mg/l		63	61		72	47
Iron mg/l						
Magnesium mg/l		28	25		36	35
Manganese mg/l						
Potassium mg/l		1	1		2	2
Selenium mg/l						
Silica mg/l						
Sodium mg/l		3	3		4	4
Zinc mg/l						
Iron (Diss.) mg/l		.04	1.02		.04	.02
Total Organic Carbon mg/l						

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTICS	ST- 3			ST- 3A		
	APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate G.P.M.	72.1	52	21	DRY	DRY	DRY
Air Temperature °F	62	56	76			
Water Temperature °F	43	56	56			
Acidity mg/l CaCO <sub>3</sub>						
Alkalinity, Total mg/l CaCO <sub>3</sub>	317	288	310			
Alkalinity, Bicarbonate "	317	288	310			
Alkalinity, Carbonate "	0	0	0			
Chloride mg/l CaCO <sub>3</sub>	338	450	446			
Conductivity uhmos/cm	1860	2460	2570			
Fluoride mg/l						
Kjeldahl N mg/l						
Nitrogen, Nitrate mg/l						
Nitrogen, Nitrite mg/l						
Oil & Grease mg/l	<1	<1	1			
pH units	8.24	8.1	8.2			
Phosphorus, Total mg/l						
Radioactivity: Gross Alpha						
Gross Beta						
Solids, Total Dissolved mg/l	1412	1960	2012			
Solids, Total Suspended mg/l	238	64	40			
Sulfate mg/l	420	576	568			
Arsenic mg/l						
Cadmium mg/l						
Calcium mg/l	143	170	177			
Iron mg/l						
Magnesium mg/l	129	176	182			
Manganese mg/l						
Potassium mg/l	8	9	9			
Selenium mg/l						
Silica mg/l						
Sodium mg/l	143	179	182			
Zinc mg/l						
Iron (Diss.) mg/l	<.02	<.02	.07			
Total Organic Carbon mg/l						

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTICS	ST- 3B			ST- 4		
	APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate G.P.M.				DRY	DRY	DRY
Air Temperature °F						
Water Temperature °F						
Acidity mg/l CaCO <sub>3</sub>						
Alkalinity, Total mg/l CaCO <sub>3</sub>	277	292	278			
Alkalinity, Bicarbonate "	277	292	312			
Alkalinity, Carbonate "	0	0	0			
Chloride mg/l CaCO <sub>3</sub>	660	850	1210			
Conductivity uhmos/cm	2500	2990	3530			
Fluoride mg/l						
Kjeldahl N mg/l						
Nitrogen, Nitrate mg/l						
Nitrogen, Nitrite mg/l						
Oil & Grease mg/l	<1	<1	1			
pH units	8.05	8.0	8.1			
Phosphorus, Total mg/l						
Radioactivity: Gross Alpha						
Gross Beta						
Solids, Total Dissolved mg/l	1734	2222	2586			
Solids, Total Suspended mg/l	18	6	8			
Sulfate mg/l	235	319	307			
Arsenic mg/l						
Cadmium mg/l						
Calcium mg/l	139	250	224			
Iron mg/l						
Magnesium mg/l	97	138	125			
Manganese mg/l						
Potassium mg/l	7	8	8			
Selenium mg/l						
Silica mg/l						
Sodium mg/l	300	355	384			
Zinc mg/l						
Iron (Diss.) mg/l	<.02	.18	.10			
Total Organic Carbon mg/l						

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTICS	ST- 4A			ST- 4B		
	APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate G.P.M.	DRY			DRY	DRY	
Air Temperature °F						
Water Temperature °F						
Acidity mg/l CaCO <sub>3</sub>						
Alkalinity, Total mg/l CaCO <sub>3</sub>		252	239			347
Alkalinity, Bicarbonate "		252	239			347
Alkalinity, Carbonate "		0	0			0
Chloride mg/l CaCO <sub>3</sub>		4	5			60
Conductivity uhmos/cm		595	637			1100
Fluoride mg/l						
Kjeldahl N mg/l						
Nitrogen, Nitrate mg/l						
Nitrogen, Nitrite mg/l						
Oil & Grease mg/l		<1	1			1
pH units		8.5	8.6			7.7
Phosphorus, Total mg/l						
Radioactivity: Gross Alpha						
Gross Beta						
Solids, Total Dissolved mg/l		436	370			810
Solids, Total Suspended mg/l		16	6			14
Sulfate mg/l		101	88			177
Arsenic mg/l						
Cadmium mg/l						
Calcium mg/l		72	64			104
Iron mg/l						
Magnesium mg/l		53	48			76
Manganese mg/l						
Potassium mg/l		2	2			4
Selenium mg/l						
Silica mg/l						
Sodium mg/l		6	6			23
Zinc mg/l						
Iron (Diss.) mg/l		<.02	<.02			<.02
Total Organic Carbon mg/l						



STREAM MONITORING REPORT

EFFLUENT CHARACTERISTICS	ST- 6A			ST- 7		
	APRIL	MAY	JUNE	APRIL	MAY	JUNE
Flow Rate G.P.M.				—	2648	—
Air Temperature °F					58	
Water Temperature °F					40	
Acidity mg/l CaCO <sub>3</sub>						
Alkalinity, Total mg/l CaCO <sub>3</sub>	224	233	224		202	
Alkalinity, Bicarbonate "	224	233	224		202	
Alkalinity, Carbonate "	0	0	0		0	
Chloride mg/l CaCO <sub>3</sub>	4	3	5		2	
Conductivity uhmos/cm	623	486	573		402	
Fluoride mg/l						
Kjeldahl N mg/l						
Nitrogen, Nitrate mg/l						
Nitrogen, Nitrite mg/l						
Oil & Grease mg/l	<1	<1	1		<1	
pH units	8.44	8.5	8.6		8.5	
Phosphorus, Total mg/l						
Radioactivity: Gross Alpha						
Gross Beta						
Solids, Total Dissolved mg/l	372	338	362		254	
Solids, Total Suspended mg/l	114	22	4		32	
Sulfate mg/l	107	62	78		10	
Arsenic mg/l						
Cadmium mg/l						
Calcium mg/l	59	66	61		68	
Iron mg/l						
Magnesium mg/l	49	39	43		21	
Manganese mg/l						
Potassium mg/l	2	1	2		1	
Selenium mg/l						
Silica mg/l						
Sodium mg/l	6	5	6		3	
Zinc mg/l						
Iron (Diss.) mg/l	4.02	.03	.02		.06	
Total Organic Carbon mg/l						

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880  
Sample ID: ST2B-71  
Sample Date Time: 06/23/88 11:00

Lab No. : 88-WI/03899  
Date Received: 07/01/88

Parameters

Alkalinity as CaCO3	196.	mg/l
Bicarbonate as CaCO3	196	mg/l
Boron, dissolved	.02	mg/l
Calcium, dissolved	47.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	4.	mg/l
Conductivity @ 25C	453.	umhos/cm
Fluoride	.1	mg/l
Hardness as CaCO3	261.	mg/l
Hydroxide as CaCO3	0	mg/l
Magnesium, dissolved	35.	mg/l
Nitrogen, ammonia	.04	mg/l
Nitrate as N, dissolved	-.02	mg/l
Nitrate/Nitrite as N	-.02	mg/l
Nitrite as N, dissolved	-.01	mg/l
Oil and Grease	-1.	mg/l
Phosphorus, ortho total	.02	mg/l
Potassium, dissolved	2.	mg/l
SAR in water	.11	
Sodium, dissolved	4.	mg/l
Sulfate	51.	mg/l
Sulfide as S	#	mg/l
Cations (sum)	5.45	meq/l
Anions (sum)	5.10	meq/l
Cation-Anion Balance	3.32	%
Solids, total dissolved	318.	mg/l
Solids, total suspended	16.	mg/l
Solids, total volatile	4.	mg/l
Aluminum, dissolved	-.05	mg/l
Arsenic, dissolved	-.001	mg/l
Barium, dissolved	.07	mg/l
Cadmium, dissolved	-.005	mg/l
Chromium, dissolved	-.01	mg/l
Copper, dissolved	.01	mg/l
Iron, dissolved	.02	mg/l
Iron, total	.12	mg/l
Lead, dissolved	-.02	mg/l
Manganese, dissolved	-.01	mg/l
Mercury, dissolved	-.0001	mg/l
Molybdenum, dissolved	-.05	mg/l
Nickel, dissolved	.02	mg/l
Selenium, dissolved	-.001	mg/l
Zinc, dissolved	.01	mg/l

Remarks:

Note: Negative sign "-" denotes that the value is less than "<"

Ralph V. Poulsen, Laboratory Director

*Ralph V. Poulsen* /S.H.

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880  
Sample ID: ST5-88  
Sample Date Time: 06/23/88 10:30

Lab No. : 88-WI/03900  
Date Received: 07/01/88

Parameters

Alkalinity as CaCO3	239.	mg/l
Bicarbonate as CaCO3	239	mg/l
Boron, dissolved	.08	mg/l
Calcium, dissolved	78.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	44.	mg/l
Conductivity @ 25C	999.	umhos/cm
Fluoride	.2	mg/l
Hardness as CaCO3	585.	mg/l
Hydroxide as CaCO3	0	mg/l
Magnesium, dissolved	95.	mg/l
Nitrogen, ammonia	.03	mg/l
Nitrate as N, dissolved	.11	mg/l
Nitrate/Nitrite as N	.11	mg/l
Nitrite as N, dissolved	-.01	mg/l
Oil and Grease	-1.	mg/l
Phosphorus, ortho total	.02	mg/l
Potassium, dissolved	5.	mg/l
SAR in water	.47	
Sodium, dissolved	26.	mg/l
Sulfate	292.	mg/l
Sulfide as S	#	mg/l
Cations (sum)	12.96	meq/l
Anions (sum)	12.14	meq/l
Cation-Anion Balance	3.27	%
Solids, total dissolved	836.	mg/l
Solids, total suspended	60.	mg/l
Solids, total volatile	16.	mg/l
Aluminum, dissolved	-.05	mg/l
Arsenic, dissolved	-.001	mg/l
Barium, dissolved	.06	mg/l
Cadmium, dissolved	-.005	mg/l
Chromium, dissolved	-.01	mg/l
Copper, dissolved	.02	mg/l
Iron, dissolved	.05	mg/l
Iron, total	.93	mg/l
Lead, dissolved	-.02	mg/l
Manganese, dissolved	-.01	mg/l
Mercury, dissolved	-.0001	mg/l
Molybdenum, dissolved	-.05	mg/l
Nickel, dissolved	-.02	mg/l
Selenium, dissolved	-.001	mg/l
Zinc, dissolved	-.01	mg/l

Remarks:

Note: Negative sign "-" denotes that the value is less than "<"

Ralph V. Poulsen, Laboratory Director

*Ralph V. Poulsen /S.H.*

Client : United States Fuel Company  
Address : P.O. Box A  
Hiawatha, Utah 84527  
Attn. : Ms. Jean Semborski  
P.O. No.: H-17880  
Sample ID: ST6-91  
Sample Date Time: 06/23/88 09:45

Lab No. : 88-WI/03898  
Date Received: 07/01/88

Parameters

Alkalinity as CaCO3	178.	mg/l
Bicarbonate as CaCO3	178	mg/l
Boron, dissolved	.07	mg/l
Calcium, dissolved	61.	mg/l
Carbonate as CaCO3	0	mg/l
Chloride	6.	mg/l
Conductivity @ 25C	686.	umhos/cm
Fluoride	.1	mg/l
Hardness as CaCO3	394.	mg/l
Hydroxide as CaCO3	0	mg/l
Magnesium, dissolved	59.	mg/l
Nitrogen, ammonia	.07	mg/l
Nitrate as N, dissolved	-.02	mg/l
Nitrate/Nitrite as N	-.02	mg/l
Nitrite as N, dissolved	-.01	mg/l
Oil and Grease	-1.	mg/l
Phosphorus, ortho total	.02	mg/l
Potassium, dissolved	3.	mg/l
SAR in water	.18	
Sodium, dissolved	8.	mg/l
Sulfate	214.	mg/l
Sulfide as S	#	mg/l
Cations (sum)	8.32	meq/l
Anions (sum)	8.22	meq/l
Cation-Anion Balance	.60	%
Solids, total dissolved	544.	mg/l
Solids, total suspended	140.	mg/l
Solids, total volatile	24.	mg/l
Aluminum, dissolved	.12	mg/l
Arsenic, dissolved	-.001	mg/l
Barium, dissolved	.06	mg/l
Cadmium, dissolved	-.005	mg/l
Chromium, dissolved	-.01	mg/l
Copper, dissolved	-.01	mg/l
Iron, dissolved	.24	mg/l
Iron, total	1.01	mg/l
Lead, dissolved	-.02	mg/l
Manganese, dissolved	.02	mg/l
Mercury, dissolved	-.0001	mg/l
Molybdenum, dissolved	-.05	mg/l
Nickel, dissolved	-.02	mg/l
Selenium, dissolved	-.001	mg/l
Zinc, dissolved	.02	mg/l

Remarks: No H2S Data-No Tan Bottle Received/Filtered GREEN 3898-900  
Note: Negative sign "-" denotes that the value is less than "<"

Ralph U. Poulsen, Laboratory Director

*Ralph U. Poulsen* S.H.

MINE WATER DISCHARGE REPORT

1988

Station D 001

Parameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow Rate G.P.M.	I.A.	I.A.	561	350	NO DISCH.	597						
Acidity Mg/L			0	0		0						
Alkalinity Mg/L			355	363		353						
Conductivity UMHOS/CM			966	938		995						
Oil & Grease Mg/L			<1	1		1						
pH			7.2	7.1		7.1						
Total Dissolved Solids Mg/L			700	728		794						
Total Suspended Solids Mg/L			<2	<2		<2						
Iron, Dissolved Mg/L			<.02	<.02		<.02						
Iron Total Mg/L			.07	.10		.05						
Manganese, Total Mg/L			.01	.01		.01						

## MINE WATER DISCHARGE REPORT

1988

Station D 002

Parameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow Rate G.P.M.	265	37	292	133	279	404						
Acidity Mg/L	0	0	0	0	0	0						
Alkalinity Mg/L	264	290	300	284	228	235						
Conductivity UMHOS/CM	930	919	883	—	925	888						
Oil & Grease Mg/L	<1	1	1	1	<1	<1						
pH	8.2	8.2	8.4	8.3	8.2	7.8						
Total Dissolved Solids Mg/L	644	634	604	622	660	638						
Total Suspended Solids Mg/L	<2	<2	6	<2	2	2						
Iron, Dissolved Mg/L	.03	<.02	<.02	<.02	<.02	<.02						
Iron Total Mg/L	.03	<.02	<.02	<.02	<.02	.04						
Manganese, Total Mg/L	<.01	<.01	<.01	<.01	<.01	<.01						

MINE WATER DISCHARGE REPORT

1988

Station D 010

Parameters	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Flow Rate G.P.M.	1.A.	1A	1A	1A	6.3	7.2						
Acidity Mg/L					0	0						
Alkalinity Mg/L					160	247						
Conductivity UMHOS/CM					455	575						
Oil & Grease Mg/L					<1	<1						
pH					7.96	8.2						
Total Dissolved Solids Mg/L					306	330						
Total Suspended Solids Mg/L					<2	10						
Iron, Dissolved Mg/L					.02	2.02						
Iron Total Mg/L					.07	.07						
Manganese, Total Mg/L					.01	<.01						

# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527  
801-637-2252  
TELEX 453-123

RECEIVED  
JUL 15 1988

July 11, 1988

DIVISION OF  
OIL, GAS & MINING

Division of Oil, Gas and Mining  
355 West North Temple, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Division:

United States Fuel Company is hereby notifying the Bureau of Water Pollution Control of a noncompliant discharge sample from Discharge Point D001. A sample was taken on June 17, 1988 at 15:00. Only one parameter, total dissolved solids, was out of compliance. The total dissolved solids listed on the lab report is 794 Mg./Liter. The current limit is 720 Mg./Liter, the discharge flow recorded at this location when the sample was taken is 597 g.p.m. No specific cause for exceeding this limit has been identified.

Sincerely,



Jean Semborski,  
Environmental Coordinator

JS/d1

pc: E. Gardiner  
EPA  
Utah Bureau of Water Pollution Control

OIL AND GAS	
DRN	RJF
JRB	GLH
DTS	SLS
1- JLT	
MICROFILM	
FILE	



# UNITED STATES FUEL COMPANY

HIAWATHA, UTAH 84527  
801-637-2252  
TELEX 453-123

**RECEIVED**  
MAY 12 1988

May 9, 1988

DIVISION OF  
OIL, GAS & MINING

Division of Oil, Gas and Mining  
355 West North Temple, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Division:

United States Fuel Company is hereby notifying the Division of Oil, Gas and Mining of a noncompliant discharge sample from Discharge Point D001. A sample was taken on April 8, 1988 at 11:40. Only one parameter, total dissolved solids, was out of compliance. The total dissolved solids listed on the lab report is 728 Mg./Liter. The current limit is 720 Mg./Liter, the discharge flow recorded at this location when the sample was taken is 350 g.p.m. No specific cause for exceeding this limit has been identified.

Sincerely,

*Jean Semborski*

Jean Semborski  
Environmental Coordinator

JS:lj

pc: E. Gardiner  
M. Watson  
EPA  
Utah Bureau of Water Pollution Control









WATER MONITORING REPORT  
THIRD QUARTER - 1987

UNITED STATES FUEL COMPANY  
HIAWATHA , UTAH 84527

SUE,

PLEASE ADD THIS TO OUR  
3RD QTR MONITORING  
DATA IN YOUR FILES. SOME  
OF THE SPRING DATA WAS  
LATE IN COMING TO US.

THANKS

JEAN

RECEIVED  
DEC 21 1987

DIVISION OF  
OIL, GAS & MINING

WATER MONITORING REPORT

THIRD QUARTER - 1987

UNITED STATES FUEL COMPANY

HIAWATHA , UTAH 84527

SPRING MONITORING REPORT

3RD Quarter 1987

EFFLUENT CHARACTERISTIC						
		SP9-20	SP11-4	SP12-4	SP13-4	SP14-4
Flow Rate	g.p.m.	2.6	3	.13	.35	4.1
Air Temperature	°F	59	62	63	53	49
Water Temperature	°F	58	47	59	50	43
Alkalinity, Total	mg/l	182	247	257	418	212
Alkalinity, Bicarb.	mg/l	182	247	257	418	212
Alkalinity, Carbonate	mg/l					
Chloride	mg/l	2	4	3	14	3
Coliform, Fecal	MPN/100 ml					
Coliform, Total	MPN/100 ml					
Conductivity	umhos/cm	332	453	444	1173	346
Fluoride	mg/l					
Hardness, Total	mg/l CaCO <sub>3</sub>					
Nitrogen, Ammonia	mg/l					
Nitrogen, Nitrate	mg/l					
Oil and Grease	mg/l					
pH	units	8.4	7.9	8.3	7.4	8.0
Phosphorus, Ortho	mg/l					
Phosphorus, Total	mg/l					
Solids, Total Diss.	mg/l	170	262	272	824	22
Solids, Total Susp.	mg/l	6	6	34	2	36
Sulfate	mg/l	4	27	19	329	4
Sulfide	mg/l					
Turbidity	mg/l					
Total Cations	mg/l					
Total Anions	meq/l					
Calcium	mg/l	46	76	63	129	54
Iron, Dissolved	mg/l	<.02	<.02	.02	<.02	.02
Magnesium	mg/l	20	27	26	102	17
Manganese	mg/l					
Potassium	mg/l	1	1	2	3	1
Sodium	mg/l	3	4	6	14	3

SPRING MONITORING REPORT

3RD Quarter 1987

EFFLUENT CHARACTERISTIC						
		SP9-20	SP11-4	SP12-4	SP13-4	SP14-4
Flow Rate	g.p.m.	2.6	3	.13	.35	4.1
Air Temperature	°F	59	62	63	53	49
Water Temperature	°F	58	47	59	50	43
Alkalinity, Total	mg/l	182	247	257	418	212
Alkalinity, Bicarb.	mg/l	182	247	257	418	212
Alkalinity, Carbonate	mg/l					
Chloride	mg/l	2	4	3	14	3
Coliform, Fecal	MPN/100 ml					
Coliform, Total	MPN/100 ml					
Conductivity	umhos/cm	332	453	444	1173	346
Fluoride	mg/l					
Hardness, Total	mg/l CaCO <sub>3</sub>					
Nitrogen, Ammonia	mg/l					
Nitrogen, Nitrate	mg/l					
Oil and Grease	mg/l					
pH	units	8.4	7.9	8.3	7.4	8.0
Phosphorus, Ortho	mg/l					
Phosphorus, Total	mg/l					
Solids, Total Diss.	mg/l	170	262	272	824	<2
Solids, Total Susp.	mg/l	6	6	34	2	36
Sulfate	mg/l	4	27	19	329	4
Sulfide	mg/l					
Turbidity	mg/l					
Total Cations	mg/l					
Total Anions	meq/l					
Calcium	mg/l	46	76	63	129	54
Iron, Dissolved	mg/l	<.02	<.02	.02	<.02	.02
Magnesium	mg/l	20	27	26	102	17
Manganese	mg/l					
Potassium	mg/l	1	1	2	3	1
Sodium	mg/l	3	4	6	14	3

WATER MONITORING REPORT

THIRD QUARTER - 1987

UNITED STATES FUEL COMPANY

HIAWATHA , UTAH 84527

RECORDED  
DEC 02 1987

DIVISION OF  
OIL, GAS & MINING

STREAM MONITORING REPORT

EFFLUENT CHARACTERISTICS		ST-1			ST-2		
		JULY	AUG	SEPT	JULY	AUG	SEPT
Flow Rate	G.P.M.	82	82	62	SEE ATTACHED LAB SHEET		
Air Temperature	°F	71	69	59			
Water Temperature	°F	57	63	51			
Alkalinity, total	mg/l CaCO <sub>3</sub>	290	337	312	188	211	216
Alkalinity, bicarbonate	"	290	337	312	188	200	216
Alkalinity, carbonate	"	0	0	0	0	11	0
Boron, dissolved	mg/l				.03		
Calcium, dissolved	mg/l	134	145	158	51	46	63
Chloride	mg/l	16	12	11	4	3	3
Conductivity	mg/l	1320	1200	1339	420	398	449
Fluoride	mg/l				.7		
Magnesium, dissolved	mg/l	119	139	137	22	27	32
Nitrogen, ammonia	mg/l				<.02		
Nitrogen, nitrate	mg/l				<.02		
Nitrogen, nitrite	mg/l				<.01		
Nitrogen, nitrate nitrite	mg/l				<.02		
Oil and Grease	mg/l	<1	<1	<1	<1	<1	<1
pH	units	7.9	8.3	8.2	8.1	8.4	8.5
Phosphorus, total	mg/l				<.01		
Potassium, dissolved	mg/l	6	8	8	1	1	1
Sodium, dissolved	mg/l	10	13	14	3	4	4
Sulfate	mg/l	506	500	517	19	41	25
Solids, total dissolved	mg/l	964	1012	968	242	256	256
Solids, total suspended	mg/l	10	26	12	2	10	<2
Solids, total volatile	mg/l				4		
Aluminum, dissolved	mg/l				<.05		
Arsenic, dissolved	mg/l				<.001		
Barium, dissolved	mg/l				.05		
Cadmium, dissolved	mg/l				<.005		
Chromium, dissolved	mg/l				<.01		
Copper, dissolved	mg/l				.01		
Iron, dissolved	mg/l	.03	<.02	.08	.03	<.02	<.02
Lead, dissolved	mg/l				<.02		
Manganese, dissolved	mg/l				.03		
Mercury, dissolved	mg/l				<.0002		
Selenium, dissolved	mg/l				<.001		

STREAM MONITORING REPORT

\* SEE ATTACHED LAB SHEET

EFFLUENT CHARACTERISTICS		ST-2A			ST-2B		
		JULY*	AUG	SEPT	JULY	AUG	SEPT
Flow Rate	G.P.M.	133	89	89	133	74	74
Air Temperature	°F	68	79	61	71	64	59
Water Temperature	°F	57	57	46	56	61	47
Alkalinity, total	mg/l CaCO <sub>3</sub>	212	237	238	260	289	276
Alkalinity, bicarbonate	"	212	226	238	260	289	276
Alkalinity, carbonate	"	0	11	0	0	0	0
Boron, dissolved	mg/l	<.02					
Calcium, dissolved	mg/l	62	57	65	68	60	99
Chloride	mg/l	6	3	3	12	8	9
Conductivity	mg/l	487	453	504	697	699	761
Fluoride	mg/l	.6					
Magnesium, dissolved	mg/l	30	31	33	52	61	69
Nitrogen, ammonia	mg/l	<.02					
Nitrogen, nitrate	mg/l	<.02					
Nitrogen, nitrite	mg/l	<.01					
Nitrogen, nitrate nitrite	mg/l	<.02					
Oil and Grease	mg/l	<1	<1	<1	<1	<1	<1
pH	units	8.0	8.4	8.3	7.9	8.3	8.3
Phosphorus, total	mg/l	<.01					
Potassium, dissolved	mg/l	1	1	2	2	3	5
Sodium, dissolved	mg/l	3	4	5	6	9	11
Sulfate	mg/l	37	35	29	107	144	161
Solids, total dissolved	mg/l	264	298	282	412	516	496
Solids, total suspended	mg/l	<2	14	2	6	8	<2
Solids, total volatile	mg/l	4					
Aluminum, dissolved	mg/l	<.05					
Arsenic, dissolved	mg/l	<.001					
Barium, dissolved	mg/l	.06					
Cadmium, dissolved	mg/l	<.005					
Chromium, dissolved	mg/l	<.01					
Copper, dissolved	mg/l	<.01					
Iron, dissolved	mg/l	<.02	<.02	<.02	<.02	<.02	<.02
Lead, dissolved	mg/l	<.02					
Manganese, dissolved	mg/l	<.01					
Mercury, dissolved	mg/l	<.0002					
Selenium, dissolved	mg/l	<.001					